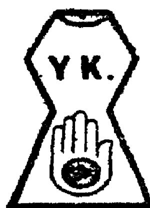
The Science of Yoga and Consciousness

(Collection of Papers presented at All India Conference on Yoga and its Integration in Modern Education held at Kanpur on September 10 to 13-1981)

Edited by

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Foreword

We live in the Age of Science. There is not one amongst us who is not interested in and does not share a concern for the impact that Science and Technology make upon human values.

Choices, either by individuals or by Society, are conditioned by values. We identify the values of a Society—or of a person – by the kinds of choices that are made. The choice to be involved with science and technology—developments in these domains continue to impinge on us—is a human choice based on our value system. Each new understanding added to Science is an individual human creation generated by some one who found the effort worthwhile. Scientific findings of the last few centuries have not been just matters of individual excitement and personal satisfaction of gifted laboratory scientists; they have, on the other hand, brought a growing understanding to people at large that human beings and the world that they live in are comprehensible, that the Universe itself is an orderly system and there we can make our choices with an increasing awareness of their consequences.

The fundamental unity in Nature, which for many centuries, had just remained a dogma or an aspiration is now a principle of Science based on proof. Science is no longer an entity, somewhere on the fringe of society, in a separate compartment, providing a few ideas, techniques and the like; it has become an integral part of the cultural, social and economic framework in which we live and work. Technology, in several areas of application, has opened up vistas of possibilities that had not been dreamed of even a couple of decades ago.

It stands to reason that Science and Technology should come in and obliterate scarcity and create abundance; conquer disease and assure for man a better life expectancy and better health-care during the journey on earth; and provide numerous devices that will help to eliminate the pain of mechanical

labour and allow people time for artistic pursuits and humanistic work. This has not come to pass. Poverty and hunger threaten and afflict large segments of the population—forcing them to live in squalor, want and helplessness often in conditions so deplorable as to be below any rational definition of human decency. Life continue to be a mixture of strife, antagonistic urges and violence.

Noble Laureate in Physics, British Scientist, Dennis Gabor says: "I basically distrust the nature of man. He was constructed to be able to fight his way out of the jungle. His basic impulses to survive and to grow have led to tremendous problems in this age of Science. The way out of this jungle is to change man's motivation, turn his mind toward the need for a better quality of life instead of the menacing posture of destruction." Swedish Scientist, Professor Hannes Alfven states that the dilemma of today is that scientists, equipped with the most sophisticated observational techniques and devices, are unable to understand and observe social and human conditions that exist outside the walls of their laboratories—and he calls for a change in the relationship between society and science based on new thinking and bold initiatives. In defence of Science, David Sarnoff says: "Belligerency is an attitude of mind and not a property of matter, and therefore does not concern Science as such."

For centuries, humanity was guided by the impulses of religion with its element of magic, unquestioning faith and belief in the Super natural. Religion supplied some of the deeply felt inner needs of human existence and human nature. It established a set of values, some harmful and some based on morality. As knowledge spread and reason began to develop, religion began to look more and more like a collection of superstitious beliefs and practices and seemed to demand a surrender of one's mental faculties in favour of some undefinable emotional experience. To the common man, in the age of science, philosophy, with its urging of the supremacy of the inner life over external things, has become something to be resorted to only in moments of despair or anguish somewhere along the way, the moral and ethical approach to life has been lost-with its stress on the righteousness of the means and its precedence over the material value of the end. There is a marked imbalance

between the rate at which we are able to consolidate it and intergrate it in the context of human needs and aspirations. Science till now has shown little concern for this. Worse still, in its cold and objective march forward, it has left behind and ignored humanism as a factor in the affairs of mankind.

Science needs the humanizing influence of the arts and the classics; just as the latter need the disciplining inherent in the Scientific method Science based education can be of real help only when it accepts humanism as its foundation and thus lends its methods of observation and reasoning to regions of human experience which lie in the domain of the moral and the ethical This has so far eluded an objective approach However difficult the process, it is only in the framework of precise, objective knowledge that we may ever hope to reestablish the old set of values as a factor of consequence in the building up of what Aldous Huxley referred to as 'the fulfillment society'. This process has to start with the individual-with the introduction of harmony between his inner and outer life-with the logical introduction of this harmony to the relations between him and members of his social group and then between groups and going beyond to genuine co-operation among nations.

The way out of the present tangle—the method of overcoming, the dilemma in which we find ourselves, lives in following the path of Yoga. Throughout human history, Yoga has had relevance to the state of consciousness attained by man in general This consciousness has been nourished in various ways but there is currently an imperative need for integration —integration that is not merely inner but covers the external life as well. The potentialities of man have to be developed in all directions. Yoga, to be relevant to our times, has to touch life on all sides, at all levels. It should embrace life comprehensively. The health and beauty and power of the physical body, the capacities of the life energies, the refining of the emotions and the flowering of the intellect and other mental faculties should all receive attention. To do this, Yoga cannot rest content with the specialisations that have characterized its past. It cannot continue as a preserve of the few. It cannot be content either with the perfection of the body or with the

liberation of the mind. It has to deal simultaneously with both. It has to be science-based and integrative in its approach.

We in this country are the inheritors of some priceless legacies—sense of duty without self involvement or thought of personal gain; unacquisitive temperament; tolerance; love of harmony; and comprassion for all living things. The preservation of this heritage in the conditions of living of today is both a challenge and an opportunity to all of us.

The world has become incredibly complex and will not permit us to go back to the simplicity of earlier times. In coping with the situation, we have only one choice—that of moving to higher levels sophistication, of understanding and of sensitivity in our service to society. The practice of Yoga will give us the vision and the vitality to move purposefully toward these goals.

S. SAMPATH
Director
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February, 1987

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Introduction

S.N. MAHAJAN

The question of limitations and ways of overcoming these limitations has been with man since the dawn of human civilization. Man is painfully conscious of limits to his physical mental and intellectual powers. In general he finds that his life is fragmented and shadowed by fear, anxiety, misery and pain. Something in the nature of his relationship with himself and with the environment is such that his pleasure and joys are of a fleeting kind, followed and preceded by pain and anguish. His highest achievements fail to bring him durable or deep satisfaction and appear to vanish in thin air. His relationships with others more often than not, leave him a state of despair and disillusionment. Yet there is some intimation in the inner recesses of man's psyche that prompt him to reject these limitations and sufferings of ordinary life as how unnatural and urges him to transcend them. In this deeply felt urge to transcend, he looks for a higher mode of being and consciousness, a mode that will bring him more certain and refined knowledge at different levels of consciousness through a deeper understanding and mastery of the world. Thus does he hope to solve the riddle of existence and find perfection and ecstacy which he intuitively feels to be his own.

In the Indian tradition, general name for ways of such a transmutation of human consciousness; for search of bliss in place of suffering, knowledge in place of ignorance, fullness of being in place of death, has been Yoga. Depending on the emphasis and variation in method there are different paths to this perfection and freedom (Moksha) such as hathayoga, rajayoga, bhaktiyoga, karmayoga and jñānayoga. Thus the word "yoga" has a very wide cannotation. It is important to keep this in mind in the context of the conference. Recently there has been

a certain narrowing of the concept of Yoga, specially since its contact with the western world. It has found prevalence in the sense of hathayoga and to some extent rajayoga including pranayama and meditation In raising the question of relevance of Yoga in Modern Education the scope was not confined to certain asanas and pranayama only. With regard to meditation, there has been an approach to it which emphasises meditation as a quick way for gaining more efficiency and reducing stress in day-to-day living. These are no doubt some effects of medatative practices, but they can hardly be considered to exhaust the scope of meditation. In fact they are surface benefits. The real concern of meditation is radical elimination of wants and imperfection of man as well as an exploration of the higher dimensions of consciousness. This exploration is all the more necessary for modern man for a number of reasons. Firstly, the way of life based on attitude of conquest of nature by use of science and technology appears to have led contemporary civilization to an impasse. On the one hand, man appears to make progress in knowledge and power and yet on the other hand he seems to get more and more entangled in the vicious consequences of "development" and "power". The poisoning of air and water the decemation of other life forms including animals, birds and plants, point to an increasing destruction of the delicate ecological balance and our precious bio-sphere. And yet how can man hope to even survive not to speak of making progress if his life supporting natural environment is destroyed? The mire in which modern man has got bogged down calls for a new understanding of himself and his environment. Apart from this, the future progress of mankind depends on increased development of creativity and intelligence. It is on the basis of intelligence that man has come to regard himself as the crown and glory of creation. But so far the emphasis, specially in the western tradition has been rather one-sided; on the training and development of the analytic, pragmatic and rational. There has been a neglect of the intutive mystic and holistic modes of apprehending and dealing with reality. The tragic consequence of the lop-sided development of human intelligence are visible in the general pollution of natural, social and moral climate. This pollution and degradation is eating into the very fabric of man's

existence. It may not be an exaggeration to say that on this path, man seems to have reached a dead and dangerous end. Man's salvation lies only in looking towards the so far neglected aspects of his being namely the a-rational, non-linear, intuitive and the holistic; and according them their proper place.

Larger consideration of these sorts have provided the inspiration for this conference Education is the most important institution in a society for change and for exploration of new directions of thought and perfection Hence to a serious thinker ways of exploring consciousness and paths of perfection must form integral part of education. It is absolutely essential for the emergence of higher consciousness and dawn of a new era of civilization. One of the factors which makes integration of Yoga in modern education a worthwhile and exciting venture is the application of science and technology to a study, verification and a wide dissemination of methods and practices of Yoga Recently a considerable literature on scientific analysis and monitoring of techniques and claimed effects of Yoga, has come-up. These studies mostly on Asanas, Rajayogic Kriyas, Meditation etc. have contributed to gaining a rational and veriable understanding and thereby have helped enormously in a wide acceptance of Yoga

The paper presented in this conference cover a wide spectrum in accordance with the multi-dimensional connotation of Yoga as mentioned above

A number of papers deal with Asanas and Kriyas and their effects on the biological processes. These include "Effects of Shavasan on Stress by Datey," "High Blood Pressure and Yoga" by R A. Sharma, "Comparison of Udiyan Kriya and Uddiyana Bandha with Muellers and Valsalva Manoeuver Respectively" M. V. Bhole, "Neurophysiological Manifestations of Yogic Practices" by G S Chhinna and Baldev Singh, "Gastric Responses to Vastra Dhauti in Asthmatics—A Preliminary Study" by B. P. Desai and M. V. Bhole; and "attenuation of Cardiac Vulnerability to Dysrrhythmems" by R C. Pandey, Bhatnagar and Kalra.

In their papers Datey cites his experimental study on patients suffering from hypertension to determine the effects of relaxation technique of Yoga namely Shavāsana. He concludes that Shavāsana by itself or in combination with anti-hypertension

drugs opens up a new channel in the management of hypertension. Sharma's study cited in his paper "High Blood Pressure" confirms the findings of Datey, but he also finds the utility of some other asanas such as Tāda Āsana, Nāva Āsana, Padmāsana, as well as Nādisodhan Prāṇāyama as supplementary to Sāvāsana.

Comparing the Uddiyana Bandha with Valsalva Manoeuver, Dr. Bhole has found that even though the two are similar in respect of the lungs being in the end-inspiratory condition, attempted expiration with closed airways and an increase in intra-gastric pressure; there are important differences in terms of closing of the nostrils, contraction of abdominal muscles, upward or downward movement of the diaphragm, expansion of the chest, the extent of increase in intra-gastric pressure, tension in abdominal cavities, and the motor or sensory nature of the activity. Similarly the Uddiyana Kriya and the Muellers manoeuver which share the common characteristic or the end-expiratory condition of the lungs and attempted inspiration with closed airways, have been found to have significant differences.

Drs. Chhinna and Singh have discussed the earlier manifestations of yogic influences from the modification of sensory thresholds perception, an improved control over motor activities and coordination of ventilatory responses, to the somatic functioning and the gradually increasing interaction of somatic visceral and automatic activity regulations. An extension of the physiological ranges of different control systems in the body is brought about through a control over the peripheral and central control mechanisms, thus enhancing the tolerances to different stresses originating from external and internal environment of the body. An increase of the voluntary somatic controls over the automatic and visceral activities which appears to bring about an enhanced acquisition of efficiency for the practice of alterations in state of consciousness has also been considered as also the production of some altered states of consciousness through modification of sleep and wake cycle.

Setting forth the results of their research, Drs Pandey, Bhatnagar and Kalra report that functional regulation of vital medullary centres can be influenced by certain regular yogic practices so as to improve the physiological control of

the peripheral organ and the heart With established knowledge of baroreceptors and other reflexogenic areas of the heart and the lungs, biphasic blood pressure fluctuation by Uddiyan and Jalandhar Bandhas has been provoked This stimulated baroreceptors with or without the involvement of pulmonary receptors having direct neutral links with cardiac regulatory centers of the brain. ECG parameter was explored during and after the Yoga practice. The authors have concluded that practising such bandhas increases Cardiac potentiality against sudden haemodynamic brunts.

Drs. Desai and Bhole discuss the effects of vastra dhauti when swallowed in proper lengths in respect of free, combined and total acid contents in gastric juice.

Dr. S.C. Datta in his paper "Herbal Medicines and Aromatherapy As Supplement to Yoga for Stress Management" explores a somewhat neglected area of research. While Yoga therapy has been found very useful in management of stress and amelioration of diseases like blood pressure, arthiritise of nervous and mental disorders etc. Dr. Datta details how it can be made more effective by combining it with herbal medicines and aromatherapy particularly in cases of severe sickness where yogic practices cannot be started immediately. Dr. Datta also describes some wonder drugs that may be obtained from plants, such as Sarpagandha, which is used in cases of nervous excitement, schizophrenia and insanity, marsilca which is used to cure epilepsy and others having effects on the nervous system including Hyocine, Belladonna, Cannabis, Papervine, Strychnine and Physostigmine.

In the second group we may place papers by Dr. R. Ballantine, Nagendra, Shevde, Neurnberger, Gupta, Datta and Mehra. These authors have dwelt on the mental and emotional effects of yogic meditation. Dr. Ballantine's paper "The Combined Therapy Programme" describes the holistic health programme of the Himalayan Institute of Yoga Science and Philosophy in U S.A. The crucial element in the programme is described as increasing self-awareness on many different levels. One is trained to tune into the body and observe one's posture, breathing pattern, diet, emotions and mental processes. The programme aims at the trainee learning to co-ordinate body, breath

and mind so that they function synergistically enabling them to live in a way that is creative, dynamic and rewarding

In a report entitled "The Basis for an Integrated approach in Yoga Therapy" Dr. H.R. Nagendra of the Vivekananda Kendra Yoga Therapy and Research Centre, presents a profound analysis of the genesis of malediesphysical, psychological and fundamentally existential based on a study of Yoga texts and the Upanisdic view of the human self in terms of the five sheaths. An integrated approach for Yoga therapy is set forth, an approach by which the discords and disharmonias at all levels may be removed.

The role of Yoga in promoting a comprehensive well being on the physical, mental as well as spiritual planes is also the subject of Dr. S.N. Shevde's paper on "Therapeutic Value of Yoga" As an illustration, the Ujay system of deep breathing has been cited.

In his "Stress: A New Perspective", Dr. Phil Nuernberger contends that the currently prevalent models and theories of stress, such as the General Adaptation Syndrome (GAS) theory of Selya and other psychophysiological theories, fail to provide a logical and consistent frame-work of human functioning and dysfunctioning, because of a lack of overall perspective Defining stress as a state of internal imbalance characterized by unrelieved dominance of either arousal or inhibition, resulting in fatigue or depression, he argues that a holistic and comprehensive framework for understanding stress more completely is found in the Yoga science. Further there exist in Yoga definite ways of consciously moderating and controlling the autonomic functioning as well as emotions and mentation which can play an important role in relieving stress.

Other studies in stress in relationship to Yoga are "Meditation: A Study in Relation to Mental Stress" by Dr. K.S. Joshi and "Mental and Emotional Stress-Regulation through Yoga" by Dr. R. C. Gupta. Dr. Joshi reports the results of his experimental study on the Effects of Meditation on Stress. Using respiration, pulse rate, blood pressure, psycho-galvanic strain resistance and ECG as indicators of stress, he found meditation to reduce stress in a significant measure. Dr. Gupta's contribution concerns itself with the usefulness of Patanjali's Yoga in

coping with the stress producing situations in a more general way.

Detailing an understanding of the human self on traditional lines of Yoga and Vedanta, Shri C P. Mehra describes a large *number of techniques for mind control japa, roop nirodha,* samkalpa nirodha, tratak, meditating in the Ājñā Chakra on the form of the Guru or God and into "Who am I"? These paper constitute Part II of this book.

The physical and mental well-being of man by themselves do not consitute the highest. The question of expansion of consciousness and experience of ecstacy is an important concern of yogic discipline, it may be considered to be its highest goal. Indeed the spiritual provide the true foundations for a radical freedom from limitations and true flowering of all the dimensions of the self. Shri R G Chaturvedi, G S. Melkote, above all Ma Yogashakti in her sublime message and Swami Rama in his inspiring lectures, address themselves to these matters In "The Nescient Yoga". Shri Chaturvedi concentrates on Yogic existence as distinct from yogic experience and sets out the Nature of Reality and ways to attain oneness with it in accordance with the Shakti School. Dr Melkote makes a well reasoned and important plea for a large vision of life and a close interaction between the ancient wisdom and modern scientific quest. Science and wisdom are both needed to help man out of his present suffering and usher in a greater and better life.

In "The Yoga of Self-Awareness" Mahā Mandaleshwar Mā Yogashakti sets forth a lucid and inspiring account of the evolution of awareness through various stages transcendence of the body-consciousness, pranic consciousness and the unconscious, The opening of the Ājña Chakra and receiving of Guru's guidance and command in the Ājña Chakra has been authortatively detailed. The aspirant is led to the state where pure awareness of 'I am' without my form, motion attribute or categorization prevails. This 'I am' is no different from 'I am Brahman' the supreme realization which puts to an end all limitations and brings to the aspirant, the highest fulfilment.

In his addresses Swāmī Rāma covers a large ground he relates the science of Yoga to the various aspects of Indian Culture and emphasises the need for a total understanding of the human self, underlines the need for a Centre for Compre-

hensive Study and Research in Yoga in India, and above all focuses our attention on the various dimensions of yoga, the joy of transcending the limitations of time, space, causation and of living in the Now.

By a development of the will power, success and efficiency in the management of matters external is achieved, while with the inner strength so gathered one attains and discovers the undying sources of tranquility and joy within. Swāmī Rāma declares that no pleasure or joy of the world can ever be compared to the bliss of meditation.

Lastly in the final section part II papers by Yogacharya B.K S. Iyengar, Krishna Kant Bhat, John Harvey, S N. Mahajan and Gyan Mohan deal directly with questions of Yoga in the context of modern education.

Describing Yoga as the reconditioning of behaviour pattern to ensure harmony in every cell of the body, poise in the mind and serenity in the self, Sri Iyengar makes a strong case for introduction of Yoga in modern education. He recommend introduction of Yoga as drill upto IX Standard anatomically and physiologically from X to XII standard as mind culture in colleges and as spiritual culture in Universities. In his paper "Behavioural principles cast in the Non- reductionistic context of Yoga Psychology" Dr. Harvey underlines the need to understand the behavioural principles within a wider context like the classical Yoga psychology of Patanjali. Yoga makes an important contribution to psychology through authorness which is a higher order mechanism in changing behaviour; involving the unique ability to observe object and impartially.

Shri K. Krishna Bhat provides us with a detailed syllabus of teaching of Yoga at school and university level, both for theory and practicals, Dr. Mahajan takes two concepts of Yoga theory: Samyam and the witness, and discusses their momentions implications for man-making and learning, Finally Dr. Gyan Mohan speaks of the components which are complimentary to classroom education and outlining the usefulness of Yoga in these respects, he goes on to indicate its transcendental dimension from which 'supreme power and action flow effortlessly.

SECTION I

YOGA AND EXPANSION OF CONSCIOUSNESS

Chapter 1

Dimensions of Yoga

SRI SWAMI RAMA

I pray to the divinity in all of you
Lead me from unreal to the real
Lead me from darkness to light
Lead me from mortality to immortality.

Every human being is considered to be a citizen of the world within and without. We have studied energy, we have studied matter and we have studied mind. Yet we have not attained another step or another state of civilization. We are all eager to attain a higher state of civilization, where a man knows how to love another man. Yoga science never tells you to lean on God, on the temples' on religion or on science. First thing that Yoga science teaches you is to be free from all pains and miseries to attain a state of freedom. You are already God

India has a strong hold of this science but there is no such institute which can really give holistic approach, holistic glimpse of Yoga science. We are teaching yoga science bit by bit. Someone talks about Hatha Yoga, someone talks about Dhyana yoga and layman does not understand what it is. There is no such Institute where foreigners can come and study yoga. There are Institutes conducted by many swamis and yogis which have become a sort of business today. I really feel sad and protest here that there should be a good Institute where yoga science is taught and studied on all levels. Our need is to have one national Institute not run by any particular swami, Guru or yogi, but by those learned people who really have a burning desire to propagate the ideas of Yoga by practicing the science with mind, action and speech. When a foreigner comes

to India, where does he go? He goes to a particular yogi and finally he is disappointed. That gives bad name to our country's culture and our rich heritage. I do not know how to go about it. We have been very successful in the west Our President Dr. Ballentine and our Directors here will explain to you that we worked for 11 years to attain a status for our Institute which is now recognised by the Government Educational System and I am very proud of my colleagues, friends and students who have worked hard with me. At the same time, I feel sad. My country does not have any such Institute, where someone can come and study yoga and be proud that he has studied yoga in India We already have religion and we all talk about being scientific without understanding what science is. Yoga, if properly understood, can tell us not what to do and what not to do, but what is even more important, how to be

It cannot be accepted as a part of education anywhere in any part of the world, if we really do not practice it. According to me there are five steps of education. Education at home; if this is not properly imparted, education in the colleges and universities will be chaotic. So first step of education is education at home. If our parents are not well disciplined, we do not learn discipline, colleges and universities do not impart discipline. Second step of education is environmental education; our neighbourhood, our city. The quality of books that we are studying today is no good, indeed there is abudance of trash literature. You do not get environmental education also. Third education is the University education. What do we learn in the university? Not much education, but much imitation, that is what we learn in Universities

Then comes self-education. Yoga is a part of said education. In self-education, we learn one thing that colleges and universities cannot teach. Colleges and universities tell us to learn something, learn more and more, remember more and more but *no body teaches us how to forget everything and be quiet for some time*. Education of unlearning is more important than education of learning. How much garbage do we learn all our life. That does not help us. So that self-education is very helpful when we learn just how to unlearn things. If you don't

learn how to unlearn, there will be a serious problem and we cannot deal with such problems. Medical science, every day, is trying to have many research centres and I say why do you spend so much money for building Cancer centres and this centre and that centre. Why do you not have preventive centres? Why do you not teach people, have a programme so that all the children understand the very principle of health, holistic health, health not only on physical level but health on every level, so that one understands how to breathe, how to think and how to go even beyond. And that is not all. If I understand something about my body, breath and mind, that is not holistic health in full. According to us, life means relationships Body is related to the breath and breath to mind. How these three are related to each other is a mystery for us. Why does body not fall apart? Why do mind and breath coordinate? If you really just think for some time, mind and breath are the greatest friends exactly like the two letters in English Literature 'Q' and 'U'. Wherever 'Q' comes 'U' follows it. The way we think is the way we breathe You suddenly give me some shocking news. That shocking news will disturb my mind and completely discoordinate my breath. When my breath is discoordinated, the motion of lungs will be discoordinated That will disturb the pumping station heart and then I cannot think properly and I lose the touch with my autonomic nervous system. Now, if we learn to breath properly then we can also think properly. Those shocks which cannot be assimilated by us in our daily life, those shocks which are responsible for many psychosomatic diseases Ulcers, Hyper-tension, Coronary Heart diseases, several diseases. Eighty per cent of the diseases are psychosomatic diseases. And we can prevent those diseases if we just learn how to think properly and how to breathe properly. If you just learn to breathe harmoniously, you can easily control your mind, your 'normal' wandering mind. Tradition of meditation is found all over, in all great cultures of the world. Bible says "Be still and know that I am God". How to be still-no body teaches us. That method of being still is called meditation. If you do not allow your head, neck and trunk straight, you cannot be still for a long time. There is a way of stilling yourself. We often think that by twisting our leges and forming a posture called Padmasana, we become yogi, that

is not true. Because upper extremities and lower extremities have nothing to do with yoga. These two extremities create nuisance. When we still our body we have to put them in a position so that the lower and upper extremities do not create problems for us and we go to next step of stillness. The posture is not of some use to you because wrong posture can create problem for you in your breathing and thinking system. So you learn some of the postures which keep you fit. Then, there are some postures which have been experimented for ages as meditative postures. Meditative postures help you to be still. And once you learn to be still physically then you easily understand that you are not breathing well. In the west, we never tell students to do meditation. We just teach them postures, first. After some time, the students come forward and says "Teacher, there is something wrong with my breathing, can you teach me something" Yoga exercise have a wonderful beauty. When you start doing yoga exercises, those exercises will lead you to the next step of awareness. So yoga means awareness. You become aware of breath. There is something wrong. I am not breathing properly, and when you learn to breathe then suddenly you feel, well my body is under my control, my breath is under my control but I am not thinking properly. When you start thinking properly then you say "I am not in touch with my intuition". The idea of this world is not idea through mind. Knowledge through mind is very shallow knowledge. Knowledge through vision is considered to be the highest of all knowledge. And that we receive when we go beyond the mire of delusion created by our own minds. So there is another source of knowledge that you come in touch with and that is called the infinite library within your intuition. So one after another you go deep within to that source of light and life which really makes you free and fearless. If there is a choice for me 'Oh Mr. Rama Do you want to see God or you want to be free from all pains and miseries', I am not a fool to run towards God. I will say I want to be free from pains and miseries. So, remember the purpose of yoga is not to introduce you to some God who is outside you, some where beyond the clouds and moon and the stars. The purpose of yoga is to introduce you to yourself on all levels from your physical self to your energy, then to your mind

and then to your finest self, the real self within you. This is called journey without movement. In all journeys outside you, you move and the more you move, the faster you move, you go ahead. In this journey, you do not move, yet you go ahead. So when you talk about yoga, it is not only few exercises. It is not only few Pranayama exercises or few techniques where a Guru takes some money, fills his pocket and gives a little mantra, goes home and after ten days or fifteen days or one month, says I will give you another mantra but that is more costlier than this. Yoga is interior research of Hinduism which is not a religion but philosophy, which is universal philosophy So, I always say yoga is not part of any religion because if you study Bible, Christian Bible, you will come to know that yoga word has been repeatedly mentioned in the Bible many times as the YOKE. In Buddhist literature, in every literature, all great cultures of the world, there have been great people who knew the techniques of going to the deeper aspects of their being and they applied certain methods which are called yogic methods. But we do not want to cripple, human society by stilling everyone and escaping to it in disappointment only. A wife is disappointed from her husband and husband is disappointed from wife and they both sit down in meditation because they want to escape; That is not yoga. Yoga teaches you how to compose yourself and be perfect in the external world too and that is called meditation in action. If a yogi rushes from this place to that corner and blind man also goes there, blind man will knock down many people (hurt himself, hurt others and will reach there late) but a yogi will reach there first without hurting himself and any one else. You learn how to have control over yourself. Control means you know how to direct your energy. Modern man always tries to enjoy things of the world forgetting that he is constantly identifying himself with the objects of the world and that has been misery for him. Forgetting his true nature, he is constantly identifying himself with the objects of the world and he gets attached to the things of the world and a time comes when he cries. Most conforting time is time when you leave this body. Death is never painful, is never fearful but you are afraid of death because you are attached to the things of the world which are not yours. All the things of the world are not yours why are you attached to

them? No answer. But once you learn how to deal with the objects of the world then life becomes a poem, and a song and then, the flower of humanity will bloom and we all will remain in one family loving all and excluding none. What actually do we need today? "oh" you say "Gods' grace" We do not need God's grace actually. We need major transfusion of human compassion. If we human beings learn to love each other with all our capacity that will be called divine love. We human beings learn to understand that animal in us is not so helpful. Human in us can touch divinity. That will be the biggest day We are still leaning on God, when we carry God all the time. I say human being is greater than God. A human being is a vessel that carried God all the time anywhere he goes. Because God is already in you. Wherever you move, whatever you do, you carry God with you. Why are you so small? Yoga science makes you aware that human being is not a mere human being, not only a body, senses mind but he is the centre of consciousness within. And once he understands the centres of consciousness within is the greatest of all, then he can radiate that love to all others. I don't know why, may be some mistake in my philosophy but as far as I have studied yoga science and practised, let me tell you one thing: today's world, no matter how much scientific attainments we have, will go on suffering. Yes, It does not understand the very principle of life. We have to be the student of life and not depend on any Guru or any particular school. We have to learn that. We have to learn and realise that. And that's what yoga science teaches us. Yoga science never teaches you to depend on other things of the world. Lean on no one. A Guru is like a boat. Once you have crossed the river, you do not carry the boat with you. Guru is means and not the end In yoga science you become independent, you become self-reliant, you understand the source of wisdom, you understand the source of knowledge. So there is one serious defect in our educational system and that is, from our childhood onwards, we are taught to see, examine and find things in the external world. No body teaches us how to look within, how to find within and how to be at peace with ourselves. That part of education is missing. I was very proud of Indian women, for men will be sorry to know that they are not the founders of school

of meditation. They are not. It is women who are the founders of the school of meditation. Even today, 75% of our people live in the villages and every village has got a place outside at the village well, what does a woman do there? She will put that vessel of water over her head and with vanity stand talking to her friend. She even cries, she walks but that vessel does not fall down. That is called meditation. When you do all your things but yet you don't get disorganised. Pain comes, pleasure comes but pain and pleasure do not affect the flower of life within Something has happened to our mothers There was a time when a child used to imitate mother. Mother sat in meditation, child would also sit. Today's mother does not sit in meditation. How will of the child learn? I want to tell you something: Why your culture, Indian culture, is considered to be very old and ancient Women have been the custodian of our Sanskriti or culture. That is why your culture is so rich. That's why you are proud of your culture What has happened to those women today? Our whole society is crumbling because they are imitating other women of the world. The woman had high status in Hindu society When Surbha came to Janaka's court, she closed her eyes and looked at Janaka, who was considered to be the greatest of all yogis during that time. Janaka said "you are an intruder" You know what did she reply, "you idiot, after attaining this state of Janaka you still think like that" He got up, caught hold of her feet and said "from today you are my Guru." That woman has forgotton her status in our society. What will be the fate of the education of our children? A child is educated, 22 years before he is born. The mother needs education. But does not need college and university education as much as that education which she has received from her mother-in-law and other people. I will tell you about "Arundhati Nyaya". When the daughter-in-law came home mother-in-law used to catch hold of her and say "come on, I will give you something which nobody has given you. I want to give some wealth". She would take here out and say "Let's look at that star. Do you see it?" "Yes", "Another star next to it". "Yes, I see that twinkling star" she said "That is not the thing. See there is another small star" She said "I do not see that". "So this is my wealth to you. See the third star that which you are not seeing today, I give you this gift" Means, Grow from

the known to the unknown, learn to understand that which is unseen. That gift, I give you today. Today, we are suffering on account of diseases called dowry and several other social diseases Let us come back and pay attention to one thing really and that is called family institution. The west is suffering on account of this problem. It is crumbling. The childern become violent because they are restless, (when they come to us we know some of the students cannot close their eyes for more than a minute) because of inner turmoil created by parents. Why should we create turmoil for our childern, why can't we impart exemplary education to them? But today parents lie and tell childern not to lie, spank them for that This creates a confusion and conflict in child's mind and the child grows with conflict This is going on all over. How is education imparted by colleges and universities going to help us? I say it is inorganic education that we receive, it is helpful for the external knowledge but it is not helpful for inner happiness And we need happiness within and without both. So I think between religion and science there is something that is missing and we can create a bridge between these two and that can be done with the help of yoga science, but yoga science on all levels, from Hatha Yoga—all aspects of hatha yoga—to the highest step, called Samadhi. We often wonder about this word. The word Samadhi is not really so difficult as we make it: Samahitam. If all your questions are resolved, you are in a state of Samadhi. Why do you not resolve your question? If you have questions, please try to resolve all questions and attain a state which is free from all questions In which language will your mind, jabber if you have no questions? So, when you learn to discipline yourself with the help of yogic exercises, good and healthy food, harmonious breath, right thinking, right action, I think we can all become yogis and attain a higher stage of civilisation. It is possible. We worry much about Atom bomb and Hydrogen bombs. All the time our minds are hunted by these bombs and those bombs. You know what is happening. This is the greatest weakness of human beings either they think of past or they project a future. This robs them of happiness of the now. Do you know how to be happy now? I have seen wife and husband fighting and husband bribes the wife saying, "Honey, I will take you to buy a fur coat". So always he promises something for tomorrow,

day after tomorrow. The happiness is postponed for next year. So there is something missing in our life plans and that is the 'now'. All the time, our minds are controlled by our past and we think of future: tomorrow and day after tomorrow. A swami will come down from the mountains and will enlighten us. So we should not meditate, we should not do anything But, we should learn to apply all the human resources, all the human potentials, towards our growth. We are all well equipped. We do not need any one's help. A human being is well equipped in himself. We need inspirations from the great people Do not forget the great saying of Lord Buddha, "You have to light thy own lamp. No body will give you salvation". Yoga also says that. You are constantly identifying yourself with the objects of the world forgetting your true-self Most of us think about yogic science in term of time because ours is a time oriented world. How long will it take, Swamiji, to learn Pranayama? How long will it take for us to do meditation? I will tell you a story. When a student started learning meditation, she had certain complexes. Her husband was very brilliant and well balanced. So, she started doing meditation exactly at 5 30 p m. when he would return home And she used to sit down in the close. He'd say "Honey, Honey, where are you?". "Don't speak to me. I am sitting in meditation." She never wanted to offer him a cup of tea She wanted to escape. Many of us talk about yoga, practice yoga meditation for the sake of escaping. These are the complexes. You do not have to do anything of this kind. Be at home, be normal just regulate your life, just learn to understand yourself on all levels and you are a yogi and can just enjoy life. To be a yogi, you do not have to be a hypocrite. To be a yogi you do not have to renounce the world. It is very difficult to do that. There is only one benefit in renunciation. You have plenty of time Yes and when some body has plenty of time but does not know how to use that, his mind can become workshop of the devil. And you people of the world have some thing great, plenty of resources you have. If you learn to use your resources properly and have some time for your inner growth, regulate your lives, you can enjoy life and be here and now That 'now' is missing from our lives. There is nothing called 'now' we can spell word 'now' but we do not know what it is? In meditation you can

enjoy that 'now' the here and 'now' The mind is conditioned by time, space and causation. And if you learn to meditate, you can go beyond that and you will be free from the bondage of time and you can enjoy that what is called 'now' and 'here'. Every human being should learn how to do meditation It is very easy. You do not need any Guru to do dedication You need a teacher and if you are ready, the teacher will come So learn to still yourself Sometimes, every day, learn to do a few exercises. I want to tell you something After doing many experiments in the western labs, I have come to know that yoga exercises have nothing to offer to get rid of cholestrol Don't be disappointed There are a few exercises like that in yoga but no one practices those exercises. There are several other things which are given by systematic jogging. The way you move, learn to move Only yoga exercises will not help you, you will have to learn breathing with it and if you learn to jog with the breathing, you can play tennis for five hours, six hours. You can run for eight hours and you will be not tired. We have to do more experimentation. We should not say. all the postures, all the exercise are perfect. We are beyond scientific experimentation. That is not true. We should continue doing experiments. Science is never ending.

In an Institute like yours Professors and the Director are trying to teach the students that part of science which is not in curriculum. There are two branches of science. The inner part of the science is called exact science. It is an exact science if you get a right teacher. First of all you should learn yoga-nidra from a right teacher. Ordinarily even after 8 or 10 hours of sleep, 12 hours of sleep you are not rested. There is a method of sleeping That particular method by which you can go to deep sleep consciously and then come back exactly after few minutes, or hours, that is called yoga nidra. How does a yogi sleep? Voluntarily, he goes to sleep and then comes out. Then t' ere is sleepless sleep. You can go to Samadhi, a very short cut from sleep to Samadhi. There is very little difference between these. During sleep you are very close to the reality sent you are not aware of the reality. During samadhi you are very close or fully aware of the reality—that is the difference. Those who want to practice, very easy for them to understand. We all can do here something in this world by using our conscious-

ness: expanding it, becoming creative by making it universal. And let me tell you one thing, if there is a higher civilization, after a few 100 years, may be after 50 years, it will be based on holistic approach, not only on God business. Christians have God, Hindus have God. What has happened? You all are still suffering, your God is not helping you. You have to help yourself now and that is what yoga science says. Be self reliant. Learn to understand that part of God which is within you Don't ignore God within you Don't go outside for the God which is not there, it is just projection of your mind. If God is omnipresent, omniscient, then there should be God in you. Why are you ignoring that part of God? That's what yoga science says. If you really want to have self-reliance, if you really want to be free from fears, then learn to see that God who is within you, directly within you. That is what the Gita also says

God is everywhere but Krishna teaches Arjuna:

First learn to see God within you, practice and principle both together. There is something I want to confess here before you. After becoming Swami I did not learn anything. Whatever I learnt in my childhood, the same thing I am repeating today Be good, be kind, be nice, be gentle, be loving. All these things I learnt in my childhood. What new things have I learnt today? We waste our time in repeating them. All the principles of life I learnt in childhood. We should learn to practice them. When I went to Gandhiji I asked him one thing. I said, "You always talk about "Truth" and you say that one should practice truth with kind action and speech and if one has known this he has nothing more to know. I appreciate that. But how to practise Truth because I do not know what Truth is?" You know, what did he say? He said, "Don't lie, by not lying, you will be speaking the truth. If you learn not to lie, you will always speak the truth." So one is the principle: speak the truth, but the way to bring this principle into practice is by not lying. In Shastras, Upanisads and all the great scriptures there are two sets of rules 'VIDHI' and 'NISHEDHA'. If you learn to practice, we are there. The younger generation of India today, I really adore you, because you have a future. Do not expect an old man to sit on the Ganges and meditate. No, old age is another childhood but full of follies. The moment they

like to close their eyes, sleep captures their mind and they go to sleep Youth is the right time to practice Young people should learn to practice themselves. And first thing, they should practice very simple thing I'm telling you Practice to walk straight, to sit straight, keeping your head neck and trunk straight. This will change the whole concept of life When you walk straight, you see, create hump and then walk very unyogic. These basic things, how to sit and how to walk and how to eat, no body teaches us Then learn to sit quietly for a few minutes every day, punctually at the same time When thought comes, let it go You will find that gradually you have control over your muscle life and slowly you will understand the necessity of learning yoga and practising yoga

So, may I thank the Director, Professors, Sushilaji, our guests and great yogis sitting here and you all for your kind hospitality and pray to the divinity in you PEACE, PEACE, PEACE.

Fifth High state of education comes when you really create a situation for yourself and go to deep state of silence, then you learn something that is beyond so called education, not through instinct, not through preception but something intuition. That is a deeper state of education one really aspires to receive through silence and from silence.

SWAMI RAMA

Chapter 2

"Yoga of Self-Awareness"

MAHA MANDLESHWAR MA YOGASHAKTI

Self-awareness is to be evolved in stages and by this process you will ultimately realize the existence of the power within. The Yogic practices of "Japa" and meditation are the means to develop it. After proper development, self-awareness becomes a reality and an experience

Before explaining the practice of self-awareness, let us state a few important points.

Remember the words body-consciousness, "Prāṇic" consciousness, mental consciousness, astral consciousness, causal consciousness and disembodied consciousness. You should remember these six phases of consciousness.

When you sit in a posture, the first consciousness is called body-consciousness. Then you slowly breathe in and out. After some time you will feel that the bodily consciousness is diminishing and you are becoming more conscious of the incoming and the out going breath. This happens gradually. You become more aware of the flow of "Prāṇa" as a result of this. After some time, Prāṇic consciousness becomes predominant and body—consciousness is extinct. At that stage, you are conscious only of breathing. You are unconscious of your body.

Now to the Prāṇic consciousness add the Mantra "Om" or "Soham" and become conscious of "Soham" so that you feel "So" with incoming and "Ham" with outgoing breath. After some time you will become unaware of the two streams of breath; simply "Soham" will remain in your awareness. When this becomes intense, you will get visions.

As you see visions, mental consciousness begins to fuse into astral awareness. At this stage all forms of "Ajapa" will be

consumed by an overgrowing astral consciousness. *You will land in a plane which is beyond the mental plane.*

Here the suspension of individual consciousness will take place, as a result of which the aspirant will enter into deep slumber and become unaware even of process. Those who praotise this in Shāvāsana (sleeping or corpse posture) will revive into awareness only in the morning, but those practising in Padmāsana (Lotus posture) will revive into awareness from time to time. Every spiritual practitioner can experience and reach upto the state of astral consciousness by dint of simple practice under guidance. But when the Self goes to the unconscious, the aspirant will have different experiences. He will then experience cyclic movements: slumber, visions, dreams, again slumber, and so on. Here he moves between astral and casual spheres of the Self. Beyond this no one can go all alone. This is the phase of complete darkness, where you are not aware of anything like time, space etc. There is absolute suspension of every activity of the mind. There is no functioning of the will there. As a result, the aspirant returns to the realm of visions, then gradually or suddenly back to the mental, Prāṇic, and body-consciousness. In Yogic language, we call it coming and going or taking birth again and again, which really means revival of consciousness.

If you want to go beyond this phase of consciousness, instruction alone is not sufficient Guides, books, or Satsang will not help you. Here a Guru (spiritual Master) is essential, who can create light from darkness. Guru is the dispeller of darkness which is pervading Chidākāsh. He is the one who takes you through the chamber of unconsciousness, which in yoga is the "fifth chamber" and no aspirant can pierce through it without Guru's grace for no sooner he enters it, he becomes totally unconscious of himself. There is no trace in him of will power. Therefore, in the fifth chamber, he needs someone to carry him through. When the aspirant sleeps in the fifth chamber of meditation, he does not hear with ears, but follows his Guru's instructions. The Guru's commands are received in the 'Ājñā Chakra' (the third Eye, the Brow Centre). None except those whose Ājñā Chakra has begun developing can listen to the Guru's commands.

This is the generalized method:

Meditate on the body and transcend the body.
Meditate on the Prāṇa (Breath) and transcend the Prāṇa.
Meditate on the mind and transcend the mind
Meditate on the visions and transcend them.

After this is done, those who wish to do without the Guru, should meditate on the unconscious self and transcend that also. However, this method is not so simple. It is easy to get a Guru although he is a rare commodity, but it is most difficult to transcend this dark chamber merely by concentration.

Practice: Stretch your legs and relax but with full consciousness. You should be aware of your entire body Just be sure that you are mindful of the body. Just entertain a simple thought. "I am thinking of my body." Your mind should think only of that word in unbroken awareness. There should be a continuous awareness of the body idea.

If you listen to any sound like that of radio and car, form an indifferent attitude. Do not sit for meditation with a vow that you will not be disturbed. If you create any mental attitude, external factors will disturb you very much. Once you step into the field of mental consciousness nothing can disturb you.

When you practise this body idea, you will experience the first stage of sleep. But hold on to your consciousness along the border line between the body and the mind. When you meditate you will distinctly see the demarcating line. You can hold on the consciousness on the border line.

If you meditate on the body and hold on to the border line, you will experience the phases of Prāṇic, mental, and astral consciousness. Then you will go on to the unconscious. If you cannot somehow hold on to body-consciousness; you will surely go into unconsciousness; but there will be no vision. Therefore, continue your awareness without break. We do not want broken consciousness. We want absolute, unceasing and homogeneous consciousness.

You can practise this with eyes open or closed, but better with closed eyes.

If you do it in any posture, you will have to visualize the body. Please do not go into details. Do not say, Lotus posture,

Adepts posture, etc. Do not say, "I am erect I am learning" etc Simply say, "I am". While you practise, if you feel drowsy, exercise your will and say mentally "I am". In that stage only the body-idea will diminish. You will not be totally unconscious of the body, but the self-consciousness of the body will disappear. There is consciousness of "I am" but there is no body consciousness at all.

Now you will have two difficulties. You may revive the body-idea. You may go to sleep. You have to be very careful. You will be walking on a tight rope.

If you go inside, either you sleep or revert back to the body-idea and become aware of the body Therefore, pure awareness of "I am" without any form, motion, attribute, and categorization should prevail.

This 'I am' changes into 'I am Brahman' God. First you become aware of yourself. When you become steady in this practice you become aware of the supreme consciousness. This is realization and not merely an intellectual conception. In the sixth chamber this embodied consciousness is to be transcended.

Chapter 3

The Essence of Vedic Knowledge

G S. MELKOTE

Modern scientific thinking and the development of technologies have reached unprecedented heights. For quite some time, a few decades ago, one had accepted as an axiom that what modern sciences had not accepted could have no place for human endeavour. The measuring rod was science. Religion, Culture, Spirituality, Moral values and Ethics had all been relegated to the background and one felt that one would never be able to resurrect their values again But times have changed.

An Indian brought up with faith in religion and spirituality accepting the Veda, the Bhagavadgīta, Śad-Darashanas and Upanisads had felt oppressed in a general climate of skepticism, and yet he could not and instinctively did not want to easily give up his inculcated mooring, and render himself rootless. The present climate of opinion in science has again allowed him a whif of fresh air and his great tension has been replaced by optimism and release He has again started reading his ancient scriptures anew, deriving therefrom the greatest pleasure and solace. It was his dogged perseverence alone that helped him to hold firmly to his roots. Hence present times have become most propitious to undertake studies in depth and offer rational explanations of the ancient beliefs. Even eminent philosophers like Sri R.R. Diwakar, Chairman, Gandhi Peace Foundation have started asking "(i) Can our ancient spiritual systems utilise the discoveries in Physics, Chemistry and Biology, for instance, for improving the effectiveness of treatment and pharmaceuticals and (ii) Can there be laboratories and hospitals in which a

synthetic view of both systems can be undertaken to evolve a more advanced therapy. There is no doubt that there is much truth in what our ancient systems have proclaimed. But today's students and professors are prone to take to, what could be called easy-going methods They desire to utilise mechanical methods and gadgets rather than undertake personally pains-taking methods of concentration or tapas, for finding the rockbottom truth of health and disease or practice assiduously till he discerns the "Reality" of this cosmos or the riddle of birth and death."

Hence, the caption of the conference. "Yoga and its integration in modern Education" for discussion is very captivating and timely. The modern connotation of the word "education" is rather limited. The words for education used in ancient India are "Vidya" from "Vid-to know" or the one most commonly used is "Śiksa" which was coined by ancient sages to connote a meaning derived from understanding the very comprehensive mechanism that occurs in the mind when one gets "to know". Śiksa means to impart knowledge as well as to "punish": to punish the mind, to see aright through an assiduous practice or technique which helps one to control the galloping mind, to bring it to a stand-still condition when infinite knowledge would reveal itself This technique to "still the mind" from its unbonded waywardness is learnt through the practices of yoga. Hence the importance of yoga śikṣa in training and disciplining the mind to obtain knowledge. Its integration in modern education to reach the acme of infinite knowledge is therefore very appropriate.

What is the way the mind understands the objects? What is the mechanism that takes place in the brain in this process? Ancients aver that the sensory organs through the nervous system convey to the contents of brain cells the vibrations of the external universe to which the cells react resulting in understanding the external phenomenal universe. Hence when one says that he understands a thing, it only means that the mind is reacting to the incoming external vibrations. Therefore to understand means to react in the mind to the incoming external vibrations. This process has been called 'mental ideation' by Sir James Jeans. In Indian tradition it has been called artha. Artha in Samskṛt means both the object and the meaning. To

explain this object meaning to someone else one has to use a word or pada. Padārtha means word and meaning given to the external object.

Brain cells react to the incoming vibrations, but the nature of that which is responsible to bring about the vibration can never be understood by the mind. Hence, this reaction that takes place in the mind is not the 'real' truth and has therefore been called māyā. Through practice of yoga one may get over māyā or avidyā.

Yoga affirms that the reality of the cosmos is nothing but the pure potential, all powerfull, all knowing ever existant, changeless, eternal consciousness. The cause for the coming into existence of the phenomenal universe is explained by saying that in this pure potential consciousness there is desire to play called līlā and the outcome of this play is this phenomenal universe. The play is possible through an expansion of th potential consciousness. This expansion is responsible for bringing into existence the phenomenal cosmic universe resulting in the contracting and expanding of galaxies. Hence, this cosmic world is called "Jagatyām Jagat" or a cosmos in motion The mind does not think in terms of brick blocs of matter to account for this phenomenal cosmos. The world used in India is Sṛṣti, or expansion. Expansion of the potential consciousness. This motion of expansion of consciousness is the be all and end all of the cosmic phenomenal universe Until this motion is quelled the basic factor causing the motion is not understood. Again, Yoga practices may be utilized as techniques to quell the motion and understand its cause.

One of the Śaddarshanas says the following — 'Gatimān Vastutuha Gunapravartataha"—Matter in Motion begets properties i.e., inertia, momentum and stress or mass, energy and motion. This resultant is called Vāta, Pitta, Kapha. Yoga which results in obtaining infinite knowledge, the acme of education requires a control over Vāta, Pitta and Kapha. The reality continues to exist always and hence also the motion. But what the sensory organs can cognise is only the vibrations or motion and not the potential being which is causing the motion. The Śikṣa given is therefore to discipline the mind to help it stop its motion and allow the real knowledge shine by its own light. This education is through yoga practices.

In India, leave alone the ancient sages, even during the modern times we had the examples of men like Swāmi Vivekānanda, Swāmi Rāma Tīrtha of Punjab, Mahātmā Gandhi, Aurobindo Ghose, Ramana Maharishi and Swāmī Shivānanda. All of them practiced in depth one or the other variety of yoga, best suited to their own genius and inclinations Every one of them had a full or partial experience of the reality and the language they used and the actions they performed were all in conformity with that experience. Except for Swāmī Vivekānanda and Swāmī Rāma Tīrtha, all the rest lived for a long period of years and have left for prosperity a rich legacy of very valuable literature of their experiences Even Swāmī Vivekānanda and Swāmī Rāma Tīrtha though they died very very young, have left an abundant amount of rich literature for posterity to ponder over, meditate and act. Among ancient sages Sri Shankarāchārya died young but the literature he has left is so vast and in such depth that perhaps several lives would be needed to understand and to practice. Amongst the ancient sages, Sage Vyāsa stands supreme. And yet how many of our scientists and technologists have attempted to understand the scientific background of their lives or the literature they have written Except for Ramana Maharshi all the modern saints had acquired an abundant knowledge available in the literatures of the modern West. None of them have condemned the knowledge offered by sciences. In fact they have expressed abundant appreciation of the knowledge contained in sciences and for the developments of technologies. They have only condemned the way that this knowledge have been utilised by modern governments. They have welcomed their application in relieving mankind of the drudgery that people, particularly in rural parts, are put to, and have appreciated tremendous effect that the sciences have produced in eradicating many of the infectious diseases.

It is therefore dishearening to find some yogāchāryas in India today totally tabooing the application of science in understanding Yoga and its practices. The reasons for this are obvious and many—I have no desire to go into these matters in detail at present nor do I consider it necessary to do so now except to highlight one aspect of it.

Samskṛtist who have not had the opportunity to study sciences or scientists who have no knowledge contained in Yoga or Samskṛt have not been able to appreciate each other. As a result a comprehensive coordination and the possibility of mutual contribution of the available knowledge for the betterment of mankind has remained unrealized. Hence it is not for the Samskṛtists, Ayurvedists and Yoga practitioners to decry and denounce the knowledge available in science as spurious and false. It must be said to their credit that essentially what they feel about science is correct. This phenomenal universe is in constant motion. Physics, the queen of sciences, can only examine things in motion. Its limitations crop up when it has to participate in examining things that are completely at a stand-still condition It feels itself helplessness here. The knowledge that motion offers is of the nature of Māyā or appearance only and hence not ultimate. Herein lies the limitations of science. But Samskṛtists forget that a knowledge of birth and death, health, ill-health and almost all the sixty four technologies that have been ushered in by the ancient sages are all about items of knowledge wherein motion plays the main part. Hence, modern sciences have a good deal to do with this kind of knowledge. It is only at the height of yoga i.e., at the stage of Samādhi that sciences cannot participate. The scientific knowledge and the technological skill have brought about a revolutionary change in human endeavour. How to utilise this knowledge for the benefit of ancient knowledge is what one has to tackle now boldly and quickly.

Ancient Indian Gurukulas at the time when Pātanjali Yoga Sūtras were written had introduced in their discipline a comprehensive and co-ordinative study of Ayurveda, Astronomy and Astrology apart from Phonetics, Semantics etc. Such multi-disciplinary and integrated courses were taught with regard to their scientific theories and practices to raise mankind to the highest level of health and longevity as well as sharp memory and intellect. The applied aspects of the knowledge gained through Cosmology, Astronomy and Astrology have been utilised to find solutions to problems of this world. Ayurveda was taught to understand problems of health and ill-health. Yoga was practiced to improve memory and intellect; and the earliest to forecast the life-pattern of an individual or objects

Prāṇāyāma. Without undergoing these disciplines one can never ascend further steps in Yoga.

I shall not dilate any further on the subject. The one and supreme question therefore that ancient sages posed for themselves for an exact answer was to know the reality of this cosmos. Acquisition of knowledge was fascinating, rewarding and had cosmic dimensions. The life-span of each individual was short beset with difficulties, and problems. It was a stupendous task to overcome these problems and hence the question posed was to know that "by knowing which, every thing could be known". They succeeded in obtaining an answer by scaling the Himalayan peaks of knowledge. They then enunciated three famous and well known axioms:

(I) Asato mā Sadgamaya; Lead me from Untruth or Illusion to Truth,
(II) Mṛtyor ma Amṛtam Gamaya; Lead me from Death to Immortality,
(III) Tamaso ma Jyotir gamaya; Lead me from darkness to Enlightment.

This is the essence of Vedic knowledge. This enabled them to process all branches of knowledge correctly, scientifically and technologically and the science and technology of yoga is a sequence to this knowledge. It is due to the attainment of supreme knowledge of the reality of the cosmos that enabled one to conceive of concepts like Yama & Niyama, the preliminary discipline which enjoins principles of Ahimsā, Satya Astēya, Brahmacharya. Aparigraha etc., without which development of spiritual life would be impossible. The importance of the integration of Yoga in Education can hardly be overemphasized.

Chapter 4

The Nescient Yoga

DR R.G. CHATURVEDI

1. *Nescient Yoga as Cosmic Yoga*:—Nescient Yoga is not a nomenclature representing any particular discipline of the practice on philosophy of yoga, as is represented in the denominations like Rāja Yoga, Hatha Yoga, Karma Yoga, Bhakti Yoga or any other denomination of yoga. Nescient Yoga is otherwise a nomenclature sought to be hereby used to represent the Eternal Yoga or the Reality in its yogic existence, and if the yogic state be understood in the popular sense, as a state of poise—the Reality in its yogic existence denotes the state of reality in its poised form

The emphasis here is on the state of reality in yogic existence which is evidently not the same thing as yogic experience. Since it is only the mental faculty which entertains any experience, the state of experience is synonymously a state of mind. The difference between yogic existence and yogic experience, hence, matters most, and can better be made intelligible by devising an unsophisticated definition of yoga.

Stating soberly, yoga is concentrational exercise with the aim of becoming one with the universal soul. It is this state of becoming which allows the distinction between experience and existence. Becoming is best denoted by state of experience. To become is to experience, as for example, becoming angry is not different from the experience of anger. To become something is to realise that something Becoming, therefore, is a state of mind, that is a state of experience. In contrast to the state of experience is the state of existence which is denoted not by becoming but by Being. The state of Being is a state of pure existence, and the purity of existence implies the freedom from

experience. Experience, in any form or magnitude, is only a modification of existence. The experiencing agent and the existing agent are only one. One who experiences is one who exists. No state of experience can, therefore, be said to be a state of unalloyed existence. The unalloyed state of experience is deliverance from all types of experience. The state of pure existence is, therefore, a state of non-experience. It is that state, which is the state of Being, in contrast to the state of becoming.

There being vital difference between *becoming* and *being*, the forms of yoga would accordingly differ in kinds, one of *becoming*, and another of *being*, One with the universal soul; and, therefore, whereas in becoming one, there is one or the other experience, in the state of being one there is pure existence which eludes all experience.

In becoming one, the entity who becomes one, corresponds only to a state of knowledge, that is, the knowledge of becoming one, which as a state of experience, is invariably a state of mind. The state of becoming one, therefore, logically predicates a state of departure from the state of multiplicity and diversity.

In the state of becoming one, therefore, there is always a pre-cognition of multiplicities and diversities whereas in contrast to this, the state of Being, that is the state of existence, is devoid of any pre-cognition, and is, therefore, a state other than a state of mind It is a state in itself and is the basis of all the possible states of becoming. The state of Being as the state of existence is preterite and perennial in relation to the state of becoming which is posterior and pragmatic

The truth of this proposition is so self-evident that it can be accepted without any proof, because, the mind, in order to experience any particular state, ought to exist. The existence of mind is condition precedent to its experiencing any particular state. The state of existence is therefore, prior to the state of experience, and experience being posterior to the state of existence, and experience being a posterior product, the state of existence is logically a state without any predication of experience whatsoever.

Such state of no experience is exactly the meaning conveyed by the term nescience which literally means non-presence of sentience, sentience being only the facultative aspect of experience.

The conclusion which automatically proceeds from these premises is that whereas yoga as experience is a state of becoming, the nescient yoga as a state of Being is existence pure and simple. Being a state of concentric equipoise, *it is the first* as well as the final stage of yoga It is the cosmic yoga, so to say. It is out of this state that the whole complex of creation flows and finds its way to become and realise itself into the celestial and the terrestrial worlds

The Shakti School of Indian Philosophy recognises this state as the consecrated creative force in pure potential form, and this is so because 'Shakti' literally means force, vitality or energy. The nescient content of this creative force, is called, in Shakti philosophy as the 'Yoga Nidrā' or the yogic slumber. The very first Chapter of Durgā Saptashatī, which is part of the Markandeya Purā*n*a, is an allegoric invocation of this yogic slumber, called therein as the Yoga Nidrā[1]. The 'Kāla Rātri' or the Eternal Night, the 'Mahā Rātri' or the Infinite Night or the 'Moha Rātri' or the Passive Night, are the other synonyms employed to denote this nescient state.[2]

It is some inner upheaval or an auto compunction in the nescient state of Being that becomes responsible for all the complex of becoming. The state of becoming is a downward flow of the creative force inherent in the state of Being. The fall of Adam as narrated in the Genesis, in the Holy Bible, is anthropomorphic allegory of the downward release of creative energy. The fall of Adam is mere consciousness of the momentum of creative force The fall of Adam is the indomitable desire of the creature to know of the creative power, and it is depicted as fall or lapse, because it comes about principally by way of a breach in the original state where the fruit of creative energy was forbidden. The forbidden fruit is a state prior to the indomitable desire to know or realise the facultative operation of the creative force. 'Forbidden' means simply as 'forbidden to knowledge'.

2. The Desire to Know.—The first episode of Adam in tasting the forbidden fruit is an offence attributable to the momentum of creative force.

1. (Durga Saptashati, Ch. 1, verse 66)
2. *Ibid*, Ch. 1. Verse 79.

The divine command was conservation of Shakti, the departure from it was dissemination of Shakti. Ingrained into the fancy for the forbidden was the assumed awareness of an ideal and the impairment of the ideal is actual impulse of the embodied dynamicity. The awareness of the ideal and the aberration for the breach of it, are two opposites only of one structural whole, which is Real The real polarises itself into the ideal and the actual Whereas the ideal is the quiescent mood of Shakti, the actual is the quaking motion of it The actual is a strivance for reversal of the ideal by committing a breach of it. The breach sustains the actual but sanctifies the ideal. It is the possibility of the breach that the ideal and the actual both survive. The active process of breach implicates both the ideal and the actual. There is a breach because of the ideal. It is the Shakti which breaks its bounds and it is through this breach that the Shakti becomes intelligible. The breach is basically a device for the Vindication of the ideal. The breach is, therefore, real, because it synthesises, in a dialectical sense, both the ideal and the actual. Each working phase of the real is revelation of Shakti, and the working scheme of the real synthesises the ideal and the actual and points the way in which Shakti is put to test or becomes tested.

The Shakti is the inherent limitation of the Infinite. It is with the accessories of limitations that the Infinite reveals itself and becomes finite. It is only in its revelation that the Infinite can be apprehended. The limitations are, thus, aids of revelation. The purpose of limitation is to standardise an appropriate model of the finite being, and Shakti persists in the revelation of the Infinite through finite means. It is in this revelation that the Infinite has chosen to put its vitality to test. The entire process is an experiment and Shakti is tested reality or the continual testing of the ultimately real

The Genesis, in the Bible, is mere testimony of the elan of Shakti. The fall of Adam is allegoric revolt against the dormancy of Shakti. The Divine command depicts the reposing rectitude of Shakti The divine is the slumbering state of the Shakti and the slumbering state would naturally traduce the creative process. The divine command represents the resting pose of Shakti but in the fall of Adam is furnished the restive passion for

creation The fruit which is forbidden is humanity in its procreative stage. The deep slumbering pose of the Infinite Being is averse to creation. The divine command is the first awareness of the finite being of the state of the real prior to creation. The divine command was Adam's anthropomorphy of the Infinite which was a stage of creative power withheld It was a stage of forbearance in the ultimate reality, a stage where procreation was unknown. Adam's advent was a stage where this order of forbearance had to be forsaken. It was a point of transition of the creative Shakti and its transformation into procreative Shakti.

The fall of Adam is a rhapsodic imagery of a discourse between the creator and the creature The imbroglio of Shakti was pre-meditated The creator was aware of the forbidden, and the creature was made aware of that which was forbidden. The difference is not without meaning. The awareness of God was creative energy, that of Adam was procreative power. God is name for creative agency in nature Adam is creature or product of nature. The Characters of God or Adam may be legends, and the episode may be phantasy, but the moral is correct to bear evidence that the Reality in its mystery of creation carries the burden of some primaeval force, and the procreative pleasure of the creature is likewise accountable to a later formality of the operation of this force. Shakti is Hindu name of this force which is imbued in nature and the desire to know of it is innate in man.

3. The Knowledge Gained·—The desire to know, in the creature, as instanced by the Character of Adam, starts from the first-hand information of the forbidden, and the forbidden, in the relation to the desire to know is mere admission of the unknown The unknown is one which eludes perception. Knowledge is only facultative art of breaking through the barriers of perception and thereby apprehending the causal nucleus of that which is perceived. Information leads to intelligence, intelligence to understanding, understanding to learning, learning to wisdom and wisdom to knowledge; and all this from first to the last, is a wide gap filled up by a process of transfusion of the percepts into concepts. The percept of tree can never become knowledge of tree without the corresponding concept of seed. The seed is cause of the tree but in knowing the seed as cause of tree, the

knower knows of the latent force in which the tree potentially exists; and what is true of the origin of tree is true of the origin of the entire universe which at some stage lay dormant in a reservoir of force omnipotent. The Shakti stands as synonym of this primaeval force. Knowledge, leaping back from one posterior phenomenon of force to its prior, that is from one perceptual event to its antecedent causal potentiality, stabilises itself in the comprehension of the first cause which implicates in itself the first onslaught of force of the Shakti. The finale of knowledge is, thus, a vision of the Shakti. Any cult or sectarian religion is defication of this vision.

4. Defication of Vision—Stated positively, knowledge gained is causation certified and causation certified is the Being theorised. The end of all inquiry is ontology. The method of inquiry proceeds from perception of an existing phenomena to the grasp of its preceding cause and the process of knowledge is thereby completed in a graduated hierarchy of causes in their order of precedence until there is comprehension of the First cause, in a way that each higher phase of causal reality is apprehended through a group of homogeneous causes subordinated to a common causal denominator. At each step of the inquiry, the inquirer is filled with a sense of metaphysical sublimity, until the knower feels overawed by the comprehension of the force responsible for causation. It is a supplication of the seeker to the Shakti. The inquisition turns into invocation and the moody inquirer becomes a meek invoker.

This is a simple but sufficient explanation how philosophy is twisted into religion, Philosophy is perception of knowledge; religion is perpetuation of the knowledge gained. The anthropomorphic device of perpetuation is defication which facilitates the recurrent tone of the subtle experience which the knower has in knowing the unknown. Compelled by an inner urge to give expression to the ripened experience, the cognition becomes emotion and the knower utters and whispers, says and sings. Hymns and incantations are inventions of the emotive expression. The souvenir of experience is preserved by visualising a peculiar diversity representing any particular causal force. Imposition of a goodhead is simple intellectual imagery of the comprehension of any manifest phase of the Shakti, the form of a god or

goddess assigned to the Shakti, merely varying in accordance with the nuances of the vision.

5. Deification of Shakti in the Rigveda:—Allusion in the Rigveda[1] to the deification of Shakti is in the form of a goddess, the Devi. In the very beginning of Devī Sūkta, the 'Vāk' or the word assumes an identification with Devī, and for this reason, the Devī Sūkta has been styled as the Vāk Sūkta. The 'Vāk' or the word, which is the basic form of speech involving the sense of sound being an essential attribute of the ether, is the first evolute of the psychophysical evolution. The identification of the word with the goddess has been devised to acquaint the knower with the fountain force of psychological evolution In the third verse of this hymn,[2] the goddess has been described as the dominus of the universe, one with the Infinite and the Chieftain of the divinities. In the fourth hymn, the statement is concrete that it is with the vigour of the goddess that 'annam' or the cereal is consumed. The statement is a metaphor for the conception of the primal force as the source and sustainer of appetite which in its wider connotation is facundity or the impulse to creation. What is narrated in the esoteric way is the significance of the carnal appetite in biological evolution. The 'annam' or the cereal feeds only the flesh It is, therefore, cereal which sustains carnality. This is the subtle mode of demonstrating rapture of creation by pleasure of the flesh. The aphorism used is insinuation of the descent of creative energy in the procreative faculty or an organism. In the seventh hymn, she is introduced as the creatress of the deep abyss over the Infinite soul. She is meant, this way, to be all pervasive. In the eighth hymn the goddess aphorises herself as saying:

"When as cause, I enter creation, then with automation, I move like air, indulging voluntarily into actions. I have transcendence over lands and heavens and I am so in my own majesty"[3]

Such is the vision of the formless form of the First Cause, the creative force which has not yet sprung into creation, the

1. 10/125.
2. Ibid.
3. Translation by author.

Shakti which has not yet become Sṛṣṭi, but is liable to become so by operation of her own auto-erotic principle.

6 *The Auto-Erotic Principle*:—The Shakti in her simplest guise is the animate spirit of the Infinite. It is the creative mood of the creating stuff. The creative mood or the animate spirit is the emotive disposition of the conscious faculty. It is a modification of the mind, in the colloquial sense. This depicts an inclination to evolve. The word 'animus' of the Latin origin is conceivably the most exquisite carrier of the meaning ascribable to the inner repurcussion to realise in patent form the latent lust of the primordial stuff. It is "manasah Retah" of the viscid of the volition as has been alternatively expressed in the Nasadīya hymn of the Ṛgveda [1]

The Nasādīya Hymn of the Ṛgveda, is apparently an exposition of the seventh and the eighth verses of the Devī Hymn The Nāsadīya Hymn is itself an endeavour to delineate the formless form of the First cause while in its own innate self-composed state, the state prior to its evolution, that is the state of its involution, when it was neither real, nor unreal, neither 'sat' nor 'asat' a state when there was neither day nor night, neither life nor death, neither land nor heavens, a state of perfect balance or repose, when all of a sudden, there was an inner upheaval, some indomitable desire to liberate its energy and realise its own nature. There was an automatic but invincible eagerness to gush out. The Upaniṣads have frequently referred to such eagerness with the aid of the word 'īkṣana' which literally and etymologically carries the meaning of desire or passion.

The creative mood of the animate spirit was, therefore, the first inseminating or the first impragnating tendency. It was a self-modification of the primal stuff which got a fillip from within. There was an onset of some inner alchemy and the product was a facultative fluid so artfully described in the Nāsadīya Hymn as the "menasah Retah" which is characteristically the effect of Self-dissemination.

Shakti is another name for this auto-erotic principle referred to in the Nāsadīya Hymn as the 'Kāma' or the Cupid, which is just the Self-procreative feature of the ultimate Infinite

1. 10/129.

Reality. The deep slumbering pose of the Infinite has been alluded to in the *Ṛgveda* as the Night which is a figure of speech for the over-abounding nescience

7 *The Over-Abounding Nescience*· In the Hymn of the Night, that is the Rātri *Sūkta*, this nescient force has been described as the reflector of all terrestrial things and an arbiter of the deeds of all animate beings. She is immortal and immanent .In the second verse of this hymn, this nescient force or 'Tam Shakti' has asserted herself as the destroyer of 'Tamah' or the nescience; and in the third verse, she has been introduced as the maker of the dawn, the 'Ushas' which is the Vedic counterpart of the Roman goddess Dianna. This is simple metaphysical anthropomorphy explaining the derivation of sentience from nescience, of action from inaction, of enlightenment from ignorance, on the analogy of the cycle of day and night which is a phenomenon explaining either as the centre of the other which is a popular phrase from the Brihadaranyak Upnishad, is only a paraphrasis of the above aphorism

This is a vision of the stage where the uncreated stuff leaps into the creative mood, a stage where the Infinite resolves to proceed for finiteness. It is a call for conversion in the Infinite. The existence, in the very beginning, of the 'Tamah', that is nescience or the penumbrous form of the First Cause, is a candid confession made in the third verse of the Nāsadīya Hymn[1] Call it nescience, ignorance, inaction, involution, 'Tamas' or Darkness, 'Ratri' or Night, it is the dormant or the unmanifest phase of the Shakti.

There is a fundamental agreement in the Nāsadīya and the Devī Hymns that this dormant or the unmanifest phase of Shakti was in the form of water, which has never to be misconceived as the gross potable water, but denotes the basal fluidity brought about by an inner inculation which has been best denoted in the Brāhma*n*s and Upnisads as the 'Tapa', or the peritential form of yoga[2], in the literal sense, but in scientific terms standing for fluid heat, the same thing which in biology denotes the inseminal fluid caused by the union of two bodies.

1. Rig Veda, 10/128.
2. See Gopalh Brahman I Part 1/1-2.

The collision of two bodies in the physical sense can be metaphysically represented as the stage of fusion of two causal forces. Creation metaphysically, and procreation biologically, mean one and the same principle that all production is because of the union of two opposites, each of which is a force in itself, and the two together constitute a dual causality.

8. *The Dual Causality*:—This explains the endeavour to establish 'Shakti' as the progenitress of a dual causality—one spiritual and another material.

The First cause eager for its material manifestation has, therefore, been described on the analogy of water, firstly because of its fluidity or the descending tendency, and secondly because the origin of the animate world has not been possible to trace without reference to water. Philosophy in Greece, beginning with Thales has likewise traced the origin of the material world from the primal stuff of water, having its counterpart in the term 'Āpah' which is literally water[1] and ontologically the fluid fervour of the eternal cause. But, the fervour in the fluid is inexplicable without postulating the emergence of a striving agency, because for manifestation of the material world, the motion in the matter without its prime mover can never be brought to its scientific intelligibility.

The discovery of two substances as alternating phases of one and the same stuff of reality appears to be the common theme in the two compositions of the Devī[2] and the Nāsadīya[3] Hymns of the *Ṛg* Veda. A deep abyss of nescient waters, dominated by a breathless breather appears to be the statemen evidently summarising the second and the third verses of the Nāsadīya Hymn. An oceanic womb fertilised by something floating like air, is, likewise, the apparent substance of the seventh and the eighth verses read together in the Devī Hymn. The vast unfathomable oceanic vault become turbulent by its own inner tidal wave makes a driftage into the coursing of two simultaneous currents, one forming the life essence, the breath or the concentrated consciousness, popularly understood as the spirit, and the other the moving dynamic principle inert but

1. Shatpath Brahman, 6/1/1/9.
2. Rig Veda 10/125.
3. *Ibid*, 10/129.

alluring. The one single primal stuff, surrounds, supports and sustains as sum and source of both.

In course of time, and in order to captivate faith of the populace, the ornate style of expression came to be euphemised.

9. *Expression Euphemised*: The appreciation of mysteries of nature came to be interpreted through anecdotes composed on miracles of deities; and the lore of seers descended into liturgy of the people. The transition of philosophy to religion, thus, became easier, and there was a natural overgrowth of myths and legendric characters. The incidents of Shakti which had so far been matters of speculative insight gradually settled down as allegoric personifications.

Cognizance having been taken of the abysall nescience as the pre-evolutionary stage of the First Cause, when Shakti rested in dormancy, emphasis, in subsequent thought, shifted to the study of the manifest evolutes visibly stationed in the universe as an aftermath of the operation of Shakti. The Sun, perceptibly the most luminous body succeeded in gaining the focus of attention. Responsible for the phenomenon of rains, this lustrous mass was introduced as the 'Indra', deified as the killer of the Vṛtra, meaning literally the victor of the clouds. As an all pervasive soul of the universe, piercing its rays through the vast celestial and terestrial regions and arousing and invigorating the animate beings to action, the same deity came to be alternatively described as the 'Viṣnu' a term employed to denote the one which is widespread or pervasive. As the giver of rains, this deity was naturally the grower of cereals, and the cereal being the sole sustainer of life-breath in the animate beings, it was quite convenient to enthrene this deity as the super-soul or the 'Parmātman' of the universe. Free from decay and decomposition, it was rightly conceived as an immortal being, which lay outstretched in the milky vault of heavens, creating a visual imagery of a colossal organic personality as if lying in rapose on the ocean having made the residual space, called the seṣaṁ, as his bed.

As the behaviour of all oval bodies operated through the nucleus, it was easy to surmise this luminous mass to be possessed of its own 'nucleus', called the 'nābhi', as the source of all its vitality, and in the discerning diction of the epics, this nucleus

was itself made the seat of an independent deity, named as 'Brahma', the creator or the progenitor

The organic evolution out of solar energy could be traced only in this background. Since the emission of energy from an oval body can best be interpreted as a compunctions in its nucleus, such an operation in the allegoric compositions was depicted as an invasion or a Charge on the nucleus. This invasion on the nucleus is one of the prominent themes of the Mārkendeya Purāṇa, an epic named after its seer, the sage Mārkandeya, visualising this nucleus as the play-ground of two polar forces, diverging and converging in their alternate successions. The 'Madhu' and the 'Kaitabh' are the names accorded to these polar forces.

10 *The Madhu and the Kaitabh* —When at the end of the cycle of creation, Viṣnu, the Sun, lay in repose, on the abyssal bed of the residuum of space, two vampires, born of the mucus of Visnu's ear, were charging ahead to kill the 'Brahma' who in order to save his existence had to invoke the goddess of nescience, named as the Yoga Nidra,[1] for arousing Viṣnu from his slumbers Thus relieved from his nescient Yoga, Viṣnu is awakened and the two monsters, who avowedly desired to be killed in a dry region, are ultimately decapitated on the thighs of Viṣnu.

The 'thighs' is a metaphor for the region beneath, which, in relation to the solar body, denotes the earth, and this demonstrates the origin of Organic life on earth. Viṣnu's sleep is the last phase of nescient yoga. The invocation of Yoga Nidrā, the nescience or the eternal sleep, depicts the point of submission of nescience and the liberation of creative energy because of the nucleus having been charged by the positive, protonic and the negative, the electronic currents. The decapitation of the 'Madhu' and the 'Kaitabh' is a fiction for the fusion of the positive and the negative phases of energy.

The 'Madhu' and the 'Kaitabh' are counterparts of the Roman deities depicted in the form of the Evos and the Thanatos, the former as god of life or creation, and the latter as god of death or destruction. 'Madhu' which is honey, literally stands for sap or serum, gravy or lumph, denoting the sublime

1. Durga Sapt Shati, Ch. 1, Verses 66 to 101.

source of life; and 'Kaitabh' is just the sucker or the annihilator of this sap The decapitation of the 'Madhu' and the 'Kaitabh' denotes the fusion of the creative and the destructive devices, explaining thereby the origin, on earth, of life and death intervolved, that is the creation of mortal beings. This is the history of origin of life from nescient yoga or the yogic existence of ultimate reality

The ear is the receptacle of the word or the 'Vāk', which is the first inception of cognition. This reminds of the identification of 'Vāk' or the word with the Shakti as alluded to in the Devī Hymn of the Rg Veda.[1] The mucus of the ear is, thus, the cognitive modification tending towards creation. It is the release of the serum of self, expressed as the 'manasah Ratah' in the Nāsadīya Hymn of the Rg Veda.[2]

The part of Mārkandeya Purāna devoted to narrate the majestic accomplishments of the goddess or the Devī, is just an epistle of the operation of Shakti, which in the advanced allegoric themes has been associated with the function of maintaining order both in the universe and the society. The warfare of the goddess or Devī against the demons or the 'asuras' is a well cultivated theme of tracing the source of the natural and the positive law

11. Source of Natural and Positive Law:—The terms 'devas' or gods and 'asuras' or demons are employed as allegory. Hence, the term 'asura' might stand politically for external invaders; historically for the aborigines of Indra whom the Aryans had to repel; socially for the trash and bad characters; and psychologically, for the perverted tendencies in man.[3] The terms 'devas' and 'asuras' stand broadly to denote respectively the good and the bad aspects in man as well as in nature. The mass extermination of the 'asuras' at the hands of the 'Devī' or the goddess, is the victory of order over disorder in the universe by operation of natural law and in the society by operation of positive law.

1. 10/125.
2. 10/129.
3. See Author's *State and Rights of Man*, Ch. 8, p. 132, I 1971 Edn., Metropolitan, New Delhi.

Chitta also changes. And when the Kundalini Shakti reaches Sahasrara, it regains its casual form or state and becomes one with the supreme self or the Atman.

With the merging of the Kundalini Shakti in the supreme self, the mind and mind stuff also merges completely. That is why in the state of Nirvikalpa Samadhi there are no traces of mind, mind stuff, desires and thoughts. In that state of samadhi the supreme self alone remains by itself.

Thought Functions

A thought is the development of a subtle desire. When a subtle desire (Vasana) develops or comes back to the brain—centre with the knowledge of the subtle idea, it becomes a thought. When this comes into contact with intellect, and will it results in action in the form of speech or bodily movement. Thus first a desire arises in the mind, then it develops into thought and a thought into an act.

A desire may arise in the mind on account of a willing process or when the mind comes into contact with the impressions of past subtle desires or events etc. that remain in the conscious and the sub conscious planes of the mind, or by sense irritations, or by automatic subtle desires from mind stuff carried by Kundalini Shakti, or by the senses coming into contact with the external sense objects.

As a whole Mind is said to be composed of three vehicles: menas, buddhi and Ahamkara. Mind is some thing peculiar that exists between Atman and non-Atman. When man is freed from these vehicles, he remains in his own form (Nija Swarupa).

Man's mind is very mutable or mobile and assumes the shape and form of the object it sees, feels and thinks about. These modifications of the mind are called chittavrttis or manovrttis. The aim of Yoga is to completely control the 'mind-stuff' from taking various forms. The thoughts go on changing from one moment to another, they incessantly come and go one after the other. The senses drag the mind in different directions as wind carries away a boat. The mind is constantly in a state of distraction and incessant chain of thoughts.

So the mind is nothing but a bundle of thoughts. It is constantly thinking of one thing or the other, it creates and shows

things that do not exist The mind makes a person unhappy, restless and worried. Subtle desires arise in the mind and as explained earlier they become thought on reaching the brain. When these thoughts come into contact with intellect they transform themselves into decisions and then the mind finds gratification by the actions (karmas) through senses. The actions make the fate or destiny (Prarabdha) of the person. For the fructification of this destiny the mind thinks, wavers and is accordingly tossed here and there This vicious circles goes on until the mind is freed from all its mental tendencies (Manovrttis) and attains a state of purity and calmness. It is in this state that the blissful Self shines forth from within.

Methods of Mind Control

Apart from the practice of Yama and Niyama, practice of pratyahara (abstraction) concentration (Dharana), Meditation (Dhyana) and Trance (Samadhi) help to control the mind.

Pratyahara is to turn one's senses inward away from the external world. Control of senses and withdrawl of mind from sense objects requires continuous and persistently long and determined effort with dynamic will power and cheerfulness. Concentration requires sattvic intellect & perfect calmness. This is achieved when the mind is internally fixed the self without thinking of anything else. The wavering and unsteady mind has to be curbed by withdrawing it as often as it goes towards the sense objects by thoughts born out of sankalpa and has to be subjugated solely to the self.

One way is to concentrate on anything that appeals to one as good or anything which one likes best. If you are keen to possess a particular object which appeals you most, it comes to your mind again and again automatically. You are thinking constantly of the desired object Gradually your mind gets concentrated on the desired object, this concentration of mind afterwards gets converted into Dhyana or meditation when your mental thoughts (Manovrttis) identify themselves with the desired object or thought.

By withdrawing one's thoughts from every direction and focussing attention on the desired point or centre not allowing the mind to run away from it, one attains the state of medita-

tion. Gradually by regular practice we can acquire so much control of our mind that we are able to break the chain of distracting thoughts and concentrate it on the desired point or subject as and when we wish or prevent this thought process according to our will. In other words we gain full control over our mind are able to control thoughts at our free will, so that only those thoughts that we want will come to our mind and the ones we do not want will stay away. This state of continuous concentration on a particular point, centre, thought, object, subject is called meditation and the effort to achieve this continuous concentration of mind is known as process of meditation.

Simple techniques of mind control:

I. Recitation of Mantra or Divya Nama (Nama of God) Japa of any mantra helps concentration and meditation.

Reciting 'om Sachchide cum Brahm om' also helps in making the mind calm.

Spiritual heart region (not physical heart) is the best place for fixing attention. It helps quicker concentration of mind. It is situated two inches above the heart pit, a place where ribs of both sides meet, on the right side of the chest and a little below right nipple. Here your jivatma (Individual self) lives

For people with devotional attitude 'Bhakti Bhava' concentration on Anahat Chakra (heart centre) is recommended. In case of Jnana Bhava meditation on sadaguru's figure in Ajna Chakra or recitation of 'Om Guru Om' in the Ajna Chakra is recommended. In these ways one achieves concentration of mind soon, the inner Guru (subtle guru or Antar Guru) and the outer guru (sthool or physical Guru, Baham Guru) always help sadhana.

II. Technique of Swami Akhandananda Saraswati:

(a) Elimination of 'form' (Rupa Nirodh) by making the eyes standstill.
(b) If your sankalps (thoughts) are not of attachment and hatred (Raga or Dvesha) then they can be easily removed or destroyed by controlling (restricting) speech

and sense organs (nirodh of vagendriya and Jananendriya).

(c) To suspend tip of the tongue in the mouth.

Sitting in any comfortable posture, mouth is closed. The teeth should not touch one another and the tongue should remain motionless. It should neither touch upper nor lower portion of mouth, it should just remain suspended standstill in the mouth and should also not touch the teeth.

No thought or sankalp will arise in the mind until the tongue moves. The reason for this is that thoughts or sankalps appear in the anterdesh through shabd or sound. Every thought accompanies or makes some sound. As long as the lips and tongue are still you cannot utter any sound; therefore in the absence of sound no thought or sankalpa arises or appears and concentration of mind is achieved.

III. Methods told by Mahatma Prabhuashritji Maharaja:

(a) Who am I?

Sitting in a comfortable posture in solitude with a quiet mind one should say mentally, "my mind, tell me who am I?" On hearing this your mind will run towards the Atman after crossing Annmaya Kosha, Pranamaya Kosha, Manomaya Kosha and Vigyanamaya Kosha and gets immersed in the atman. When this happens the flow of Prana becomes very slow and minute. If it returns after 10-15 seconds (which is indicated by enhancement of the movement of Prana (i.e., it flows quickly) then again one is to repeat mentally 'who am I'? While saying so there should not be any movement of your tongue, it should remain stand still.

(b) Eradication of dvesha Drshti or attitude of finding faults in others:

Because of a habit of looking for the faults of others sanskaras of hatred and jealousy go on accummulating in the mind. This happens because of pride and selfishness. To eradicate it, one should Practise to see one's own face in the nail of toe of one's foot regularly.

Practise gazing with concentration on the nail of toe of your foot with open eyes. If the nail is unclean then clean it thoroughly with soap and water and make it shining by rubbing oil on it or by painting it with a clear varnish or nail polish so that you can see your face in it like a looking glass or mirror. Move your hand and try to see it clearly in your toe nail, by practice you can see it and gradually with more concentration you will be able to see clearly your face in it. On having acquired still higher concentration you will see your complete face i.e eyes, nose, ears, mouth, chin, all will be seen together. When after sufficient practice you start seeing your entire face in it then try to visualise in the same nail your face with your eyes closed.

If you practise this regularly your outlook will change altogether and you will never think of faults of others but you will only see your own faults. This practice will eliminate from you the attitude of fault finding in others and your mind will turn inward to explore the self (will become Antarmukhi).

(c) To quieten the mind by keeping the tongue between teeth put your tongue between upper and lower two teeth.

It should just touch them and see that it does not get cut by teeth pressure. Only tip of the tongue should remain out of the teeth Now try to concentrate on the tip of the tongue with closed eyes, taking care that you remain motionless and do not change your posture.

In course of time this practice will give you concentration of mind and shall turn your mind inward to explore the self.

This practice also helps you to get rid of harsh voice which will become sweet and soft and your habit of criticizing others will also be eradicated.

IV. Methods advised by Swami Muktananda of Ganeshpuri:

(a) Concentrate on 'OM' on any plexus or Centre where your mind stays on its own and recite 'OM'.
(b) Meditate upon the figure of your 'Sadaguru' Ishta Devata at the place where your mind stays (or you get

concentration) then gradually make your mind void by eliminating all thoughts from it.

(c) Do sit for meditation daily regularly at the appointed hour for the fixed duration (it does not matter if the duration is only of five minutes), gradually with practice your mind will start getting concentration and the duration of meditation shall also increase automatically.

(d) Recite 'Soham' at the eye brow centre (it may be done mentally or loudly as you like).

(e) If during meditation you get certain visions, ignore them. Do not try to see them forcibly. Do not even wish to have them. Look at the visions as a spectator only. Gradually all samskaras (instincts, vrttis or thoughts accummulated on your mind) will get eradicated.

V. Nishkama Dhyana:

Meditation practised to realise the self, for the vision of God or Brahma is called Nishkama Dhyana.

(a) Meditation in Shad-mukhi Mudra:

Sit in Shadmukhi Mudra with closed eyes and visualise your chosen diety (Ishta Devata) or God's form and meditate on it. Whatever play or sport you witness during meditation you should feel as though you are doing these lilas or sports or acts with God. Prana gets stabilised by this practice and kumbhak is achieved in course of time by its regular practice.

(b) Those who are meditating on Saguna, God with form should keep the picture of their chosen diety or Devi before them and should see every part of the picture carefully. Then they should mentally recall the exact picture or figure of their chosen diety and concentrate on every part of this body. In case the entire figure is not clearly insualised, one should meditate on His face or feet.

VI. Meditation in 'Sambhavi Mudra':

For 'Sambhavi Mudra' one should sit in siddhasana or padamasana and concentrate attention between the two eye-

brows. Sometimes meditation with half closed eyes with eye-balls raised up is also called 'Sambhavi Mudra'.

Keep your mind fixed on the Ajna Chakra or eyebrow centre and concentrating your eyesight on a desired object or picture of your chosen diety kept at a distance of 1 foot to 2 feet at eye level. While sleeping-waking, working, or moving, at every moment and all the time concentrate on yourself and visualise the unseen self.

"Sambhavi Mudra" is another name for Tratak Siddhi (Gazing). In the beginning water flows from the eyes during this sadhana. Let it flow out. Do not stop the practice. Within a week's practice flow of water from the eyes will stop. If during practice eyes get closed because of flow of water, wipe it with a clean soft cotton swab or cloth and continue the practice. The longer you can gaze without winking and with a stand still mind (free from mental instincts or thoughts) the better it is.

Start practising for ten minutes per day and gradually increase the time to half an hour. When you have mastered gazing continuously for half an hour without winking, then you start getting visions of your Ishta Devata and witness many psychic visions. But the adept or sadhak should ignore them and keep his feeling strong for God's figure and as soon as he sees Him he should become identified with Him or merge with Him.

If you feel more strain on your eyelids then tighten your eye-brows. This will help you to keep your eyes open longer.

To gaze continuously without winking on a dot, symbol, of 'OM', glow of light, eyebrow centre, tip of the nose or at moon or stars at night is called External Gazing (i.e. Trataka or gazing on gross objects).

But to gaze at the eyebrow centre or heart centre with closed eyes is called Inner Gazing (Antar Tratak or Gazing on subtle objects). In the beginning, gazing, at the eyebrow centre causes headache and eyeballs become unsteady but after a few days' practice eyeballs become standstill but those who gaze at the heart centre do not encounter any such discomfort.

The best time for practice of tratak is between 2.00 A.M. to 5.00 A M. At this time there is calm and quiet every where and concentration of mind is easily achieved.

Sit in a comfortable posture in solitude with closed eyes and visualise that our inner consciousness and external consciousness is one and the same and has manifested itself all over in the world At this time forget awareness of your body and let the idea that consciousness is restricted only to your physical body be buried Practice this at the time of going to sleep at night and on awakening in the morning as long as you can do it conveniently. Gradually increase the duration of your sadhana.

Whatever thoughts our mind gives to subconscious mind at the time of sleep they are strengthened and handed over to conscious mind on awakening. This results in having same conception (dharana) at the time of sleep and in wakeful state.

Concentrate on anything that appeals to you as good or anything which the mind likes best. The mind should be trained to concentrate on gross objects in the beginning and later on, you can successfully concentrate on subtle objects and abstract ideals. Regularity in the practice is of paramount importance.

It is desirable to start sushumna swar or breath before sitting in japa, meditation or yoga practice.

To start Sushumna Swara:

(a) Close any nostril and take in a deep breath from the other and exhale it immediately from the closed one. Then inhale a deep breath from the same nostril from which you had exhaled the breath and exhale it from the other nostril. In this manner go on inhaling from one nostril and exhaling it from the other. By doing it 50 times the breath will start flowing through the sushumna.

(b) Recite 'OM' while concentrating in the centre of the tip of your nose, sushumna shall start in a short time.

Similarly if you want to start your left swar (oida) then concentrate on left noseril and if you concentrate on the zigats nostril then right swar (Pingla) shall start.

If you wear Basanti (xanthic) coloured clothes during meditation you will have better concentration.

You can do good meditation on an empty stomach but if you start meditating just after meals you will feel sleepy.

Adopt only one particular asana for meditation that is most comfortable to you and practise meditation in that very asana. Do not change asana again and again. Try to practise meditation as long as you can do comfortably. No violence or force should be used. Meditation should be practised at least for an hour daily

During meditation keep the body erect. Spinal column, neck and head should be kept in one straight line, erect but not tense.

Go on reciting your ishtamantra till you get concentration and on getting concentration meditate on God or your chosen deity. Continue to keep under check tossing of mind and practise concentration of mind constantly Whether you get concentration or not continue your practice firmly. Gradually you will succeed.

It is better to adopt any one of the techniques and practise it regularly. Many adepts start their sadhana with a particular technique and after practising it for a few days or months if they do not get concentration of mind with it, they leave it and take up another technique. After some time they leave that also and try a third technique and thus they go on changing the technique of their sadhana which does not benefit them. If you dig 20 wells at different places at the depth of 4 meters, water does not come out but if you dig up 80 meters at one place then water will certainly come out. Similarly you do not benefit by changing your technique of sadhana again and again. If you follow one technique regularly with firm faith and reverence then in course of time you shall certainly achieve concentration of mind and realise the self.

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SECTION II

YOGA, MEDITATION AND MENTAL WELL-BEING

Chapter 6

Science of Breath

Sri Swami Rama

The subject matter for this evening lecture is, 'Science of Breath'. There are no books available on the subject which I am trying to describe except a few manuscripts here and there in Khodabaksh library of Patna, Mysore library and Kesar library, Kathmandu, Nepal.

Our body is related to our thinking process. Our mind has two sections-conscious and unconscious. How exactly is the body related to our mind? In the city of life, there are two forces constantly functioning: one is called inhalation and another is called exhalation, Prana and Apana. These two vehicles are serving the city of life day and night. The moment these two vehicles stop functioning, this part (the mortal) separates from that part (the immortal). Conscious mind fails so this mortal part of life separates from the immortal part of life. How important it is for us to understand something about these two forces—Prana and Apana—inhalation and exhalation? According to me, science of breath is very important. We all know something about birth but we all are baffled and would like to understand anything about death. Death is nothing but a change, just habit of body and once we understand that death is just a change and habit of body, we are free from the pains and miseries that we always carry in our bosom about death. When this particular part-conscious mind, breath and body-separates from unconscious mind and the centre of consciousness of an individual i.e. the Atman or Jeevatma, that's called death. Death means separation and not annihilation.

Science of breath is a complete science and philosophy. It does not need any other philosophy. Now, to understand something about these two forces, we have to understand the outer covering called body. In our body, there are two systems; one is busy in cleansing the body and another is busy in nourishing the body. Here Yoga Science plays a very important role. Our pores, lungs, kidneys, bowels they are busy in nourishing the body. When you talk about diet and nutrition, when you talk about food, you should understand that these two different mechanisms functioning together have something to do with our food values. How much liquid shall we take, what should be the food, what should be the food value, which food will be helpful for us so that it cleans our pores, kidneys, it helps our bowels movement, it helps our lungs, these are important matters. That is why, there is a set of exercises in Yoga science which helps in cleaning all these parts of the body. So first set of exercises are for cleaning these parts of body. Breath plays a great role for cleansing pores and lungs. The movement of lungs controls various systems. If we learn to regulate the movements of lungs, we can even have control over all automatic nervous system, involuntary system and that part of mind which is being used by involuntary system can be brought under conscious control very easily. How to regulate these two guards? They are constantly guarding the city of life, inhalation and exhalation. Very interesting if you-just sit down and see that you are planning to murder somebody or you are planning to help someone or you are going to sleep, no matter what you do, these guards constantly serve the city of life.

If you just regulate these two guards-inhalation and exhalation, you know something about Science of Breath. Science of Breath is different from science of pranayama and Science of breath and Pranayama are different from Swar Swarodaya, that is advanced state of Science of Breath. So first step is science of breath. How should we breathe? We give so much importance to our breath. No one teaches us how to breathe. Mothers often say chew your food properly, child, but no one says how to breathe properly. It is very important. At least three times a day, if we just learn to pay attention towards our breathing systems that will help us a lot. In advanced stage, you can even consciously leave your body and just be free from that fear of

death. I have witnessed many such deaths in my life at least five or six such deaths. A Yogi told me, "Well, you have to come and see me in the morning at five because I am casting off my body". And we witnessed that death. He talked to us upto 4.55 and five minutes earlier, he started meditating and exactly at 5 O'clock he left his body aside. The process of dying is also understood by yoga. There is no other process in the world, no science that touches this delicate part, delicate part of human life called death because people are afraid of talking about death. Yoga Science alone knows something about the mysteries of life here and hereafter.

We all are afraid of death. As your philosophy talks to you about death, it is just like changing the book cover or pillow cover, you just cast off your body and be free. This philosophical proposition is not very helpful if it is not brought into practice. So with the help of this science, we can easily understand that when these two guards stop doing their duties, this particular part conscious mind fails and then, body and breath, this unit separates from the other unit and that is called death. This can be perfected, practised even while leading life in the world provided you know the science very systematically. First of all, we should learn only onething and that is called deep diaphragmatic breathing. Ordinarily, everyone should learn this particular deep diaphragmatic breathing. You don't see your diaphragm but you can easily help your diaphragm to expel that which has been consumed or that air which has no use in our system. The abdominal muscles help our diaphragm which forces our lungs to dispel that consumed air, used up gas. This simple process of deep diaphragmatic breathing three times a day can help us and after fifteen, twenty days or one month's time, we form the habit where automatically we start breathing diaphragmatically. This can help you remove many many diseases. There are many diseases which are self-created, where the doctors and other branches can not help you. If you are not breathing properly, pills are not going to help you, surgery is not going to help you. Even good food is not going to help you. As it is very necessary for you to understand something about diet and nutrition, it is very important for you to understand something about your breathing system. So how to go about it first? What is that deep diaphragmatic breathing? When you

exhale, push in your diaphragm. That will help your diaphragm to expel the air and then start inhaling but there comes a serious problem. We form a bad habit. Suppose this is inhalation, we have inhaled and then we are exhaling. We commit four mistakes in inhalation and exhalation. One mistake is jerky breath. It means you are going beyond your capacity in inhalation. This jerky breath is very injurious. Another is noisy breath. This noise shows that my nostrils are blocked. I have to clean my nostrils for smooth harmonious breathing But more important is another point which you-only yoga practitioners and students understand, and that is creating a long pause, uselessly. When we inhale, we create a pause; when we exhales again we create a pause. Entire science of breathing is concerned about this pause; pause means a killer. If you expand that pause without control, that is called death. But if you can control the pause, then you have victory over death. So twice or thrice a day, you should learn not to create the pause. You are inhaling and then exhaling. No pause. All the yoga manuals and scriptures are devoted on this pause. And yogi is he who has control over the pause, not one who does Pranayama with this ratio, that ratio but one who has controlled the pause. Patanjali talks about this pause, Kathopanishada talks about this pause. So first few months we should learn how to inhale and exhale with four precautions. Now, I am going to tell you one thing, how to examine breath. Without any breathing apparatus at home. Women should do it once a while, with their husbands. They should remain awake and they should watch, how he breathes. First time he will breathe and exhale. Second time, he will inhale and exhale. This shows whole night the motion of lung is irregulated. So instead of having rest, deep rest, your sleep is disturbed because of the irregularity of your breathing. Before going to bed, it is very important to do breathing for a few minutes. Just breathe few minutes deeply and then go to bed. You will have sound sleep. The quality of sleep will be improved. When we did research on the anatomy of sleep, we found out that no human being can sleep more than three hours! The so called myth that a human being needs light to ten or ten to twelve hours of sleep is height of idiocy, because we are ignorant, we don't understand, we don't do research, so we are wasting our time and energy 8 to 10 or 12 hours for sleep. Great

men like Gandhiji even Nepolean Bonaparte—he was not a yogi—but necessity leads you to research and then you come in touch with your potentials. He used to sleep on horse back. How did he know that technique? Gandhiji never slept more than two and half hours. Those who work hard, those who have some mission of life, they think that sleep, is waste of time and energy. Under anaethesia, if you put some body into deep sleep, that quality of sleep differs from the natural sleep. And when a yogi goes to deep sleep consciously and then comes out after an hour—(I want to sleep for half an hour and then I will come ourt of sleep)—that quality of sleep is very very helpful. So what do you do rest of the time when you cannot sleep more than three hours, rest of the time you toss and turn over your bed wasting your time. It is night so you have to sleep. You waste your whole night in inertia and sloth. You can use that night for reading and writing and meditation. That's what Tulsidas also said 'Jehi Jag Jamini Jagihi Jogi, Parmarath Par Panch Viyogi' Night can be used for practising such techniques which are known to us but because of sloth and inertia we don't want to practice. When you don't have to do your duties, when you have completed your duties towards your wife, children and other relatives, you can sit and do something very useful, creative, something higher. Science of Breath is a practical science. You cannot read or study this science through books, it is not possible. You are bound to commit mistakes. And let me tell you first, before you study this science, you should learn to understand something very important and that is called Asana. It is not used as a pose or posture. Just how to sit still, physically still. Your muscles will have enough rest. But what I found out when I visited many State hospitals in the United States or other parts of the world, was that there are many patients in the hospital, whose muscles are completely relaxed. So much relaxed that they have lost the power of conduction, you see, and then muscle life become useless. They have flabby muscles but they have no control over the muscles. That type of relaxation we don't need. So, first you should learn how to sit still and if you have learnt how to sit still then you can learn to breathe properly. For sitting still there is one simple rule according to yoga science. Keep your head, neck and trunk straight. Why do you want to keep your trunk straight? There should be

some reason and explanation. On your spinal column lie three ganglinated cords. In the centre lies Centralis Cornalis and both sides two ganglinated cords, sympathetic and para-sympathetic system. If you allow yourself to walk like this or as you normally walk, as though you are dead and just moving you know, you hurt yourself. But if you keep your head, neck and trunk straight and learn to sit still, during that time you are allowing these three cords to function properly, which are related to your entire nervous system, to your medular langatar to your brain, the whole entire network. In yoga science the first thing taught is how to sit still in an orderly way where you keep your head, neck and trunk straight. It is not necessary for you to practice this posture and that posture. Only a few postures need to be practiced for meditation because there are two sets of posture-one is called meditative culture, another is called physical culture. I am talking about meditative culture. So when you learn to sit in Asana, keeping your head, neck and trunk straight, then you find the problem that your breath is not behaving properly. There is something great that God or Nature has created. This is the barometer of this life which registers all the conditions of the body. If you really watch your breathing system you come to know that tomorrow you are going to have sneezing or tomorrow some problem is going to come. Now I have to stop it. Breath will tell you 24 hours, 48 hours or three or four days earlier. If you are sad, if you are worried, the breath starts behaving in a funny way. If you are very happy, the breath will start behaving in a different way. If you are calm, the breath will behave in a different way. These graphs have been studied in various universities and research centres of the world. But the problem is those who are doing research are not yogis and those who are yogis are not doing research. I tell you, our Ayurveda system is exactly like that. The Panditji who knows the scriptures, does not know what peepro is. Here at Kanpur, I put a small peepro and 'moose ki lendi' together and poor Panditji could not recognise it. A great learned man could not recognise it. So one who knows something about the herbs and about the medicines knows nothing about scriptures. One who knows about scriptures, does'nt know about the medicines, there is lack of research and coordination. So if the yogis and

researchers get together and conduct research perhaps, something will come out of that.

Those who know only postures and do not understand the importance of other parts of body, they will pay attention towards the lower extremities only. You can pull your legs and place them in a state of Padmasana but that is not Padmasana. Padmasana is never used by yogis for meditation. Accomplished pose or posture called Siddhasans is always used by yogis not Padmasana. Padmasana is a symbolic posture and very useful for health. So head, neck and trunk should be in a straight line. For fingers, there are many Mudras. The Mudras have some sense, to make the circuit in the body. First few days, you should learn just to be still, nothing else. When you learn to be still, you will find many problems—practical problems. Head will twist this way, muscles will twitch, you will find aching But slowly when you practice, you come to know that you can do it. This is your body and you can train your body, you can train your breath and you can train your mind. In yoga science, we say that it is a journey without movement, you have to learn to move. So only one thing we have learnt in the world, to run faster and faster. But one should learn to be very quiet and still, I have seen the yogis putting themselves in that situation, sometimes in the fear infested areas of the mountain. They knowingly sit there. Fear comes and sniffs. The yogi remains still, fear goes away. If you learn to be still, you can attain something higher which you have never, experienced. For knowing this science, Science of Breath, you should practice a few days how to sit still and then learn this breath. There are many breathing exercises. After learning deep diaphragmatic breathing and forming the habit, one should learn alternate breathing. That helps in channel purification—Nadi Shodhana. There are various exercises of Nadi Shodhana. Later on, you can use your mind and change the breath. Which nostrie is active? One of the nostrils will be closed but after some time, just pay attention to the flow of the breath and breath will change. In the beginning, you use your fingers, later on you do not have to, just think and that happens. It means that mind is controlling the breath. Breath and mind are the greatest friends that ever you can see. If you give shock to human mind by giving him some bad news,

immediately, you will find his changed. You inform somebody that his dear friend has died this morning, so the person starts breathing differently. This will disturb the motion of the lungs and heart which is the pumping station to brain and there will be discoordination. If you learn to breathe properly, you can control that fish called emotional body by regulating your breath. It is more important than food. The whole day Indian woman spends her time in kitchen cooking tasty food for poor Lalaji and I say you have totally forgotten your work. One of my friends from Germany came to India and you know what comment did he make when he went back. He said 'Indian woman is a murderess'. I said 'what?'. He said, "yes, because the whole day she cooks food with great love for her husband and the poor husband suffers!". Your heart condition, coronary heart diseases, have something to do with our food and you know in our country, mostly, there is so much disparity between those who eat, and those who do not Some are suffering on account of malnutrition and other are suffering on account of over-eating or fat food. We don't have any good book on diet and nutrition, not at all. Because we think that we are the best eaters and cooks in the world We consume so much fat that is not needed, it is very injurious to our health So we need to revive the whole system right from kitchen. (Yuktahara viharasya Yukta Cheshtasya Karmsu). What is that Yuktahara? It is not explained any where. Poor Guru in India has to explain everything and there are no such Gurus, because they are busy in making money, building the temples, wasting public money. How many temples do you need? You need good hospitals, good educational centres, good yoga centres. You don't need all these temples and mathas and waste public money When our philosophy teaches us that every human being is a temple, we do not need all this paraphrenalia any more.

So according to yoga science, we need to understand and practise for ourselves. Few minutes in the morning, few minutes in the afternoon and few minutes in the evening before you go to bed. You pushing in your abdominal muscles without any movement and then exhale. And let the diaphragm come out when you inhale. Let it go in when you exhale and let it come out when you inhale. Watch that you are not creating any

noise You are not breathing shallowly. You are not creating any jerk and a long pause. Slowly you will know how to breathe. It will be very helpful for you. It is a key to good health. These practical lessons are missing from our schools. With every school, if we have a small section of yoga instructions and the instructor is trained properly, you will find that in 10-20 or 30 years time, the health, the quality of thinking will be changed. Without the help of breathing system, without knowing how to breathe properly, without following basic or primary steps you cannot do advanced Pranayama exercises and you can never practice the finest of all exercises called Swar Swarodaya. Life is an ocean, full of ripples and if you know something about the ripples and if you know something about the ripples of life, you understand the whole ocean of life. First, study breath, study these two vehicles, then you study other vehicles which are conducting work inside you. There are several other vehicles but two are very important to be studied—inhalation and exhalation—Prana and Apana.

Chapter 7

The Basis for an Integrated Approach in Yoga Therapy

H.R. NAGENDRA

Summary

The basis for an integrated approach for Yoga Therapy rooted in Upaniśads and Yoga texts is presented in this report. After presenting a general classification of ailments, the science of psychosomatic diseases is described.

The origin of diseases at Manomaya Kosa level (a subtle sheath of our existence) percolates to the gross physical frame through Prāṇamaya Kośa in which disturbances in the flow of Prāṇa and instability of the Nādis are caused.

The integrated approach is to harmonise and calm down the disturbances at all these levels by Kriyas, Physical exercises, Asanas, Breathing and Prāṇāyāma, Meditation and Devotional session, Analysis and Jnāña Yoga.

The results of this approach presented elsewhere has shown promising applicational value.

1. Introduction

Yoga is becoming popular in different parts of the world. For the restless mind it gives solace[1]! For the sick, it is a boon[2,4,6,25]; 18b*. For a common man it is the fashion of the day to keep himself fit and beautiful[5,1,3] Some use it for developing memory, intelligence and creativity[1,3]. With its multi-

*Superscripts denote references at the end.

fold advantages it is becoming a part of education[3,15]. Specialists use it to unfold deeper layers of consciousness in their move towards perfection[8,17].

Because of its rational basis, the modern medical system has replaced almost all the traditional systems of medicine in different parts of this globe. It has proved itself most effective in saving man from the fatal hands of contageous and infectuous diseases[12]. However, new widespread psychosomatic ailments are posing a great challenge to the modern medical system. It is here that Yoga appears to make a vital contribution to the modern medical system. In our earlier report[7] we presented the basic principles and preliminary results of Yoga Therapy In contrast to the different methods of Yogic Therapy using one[4] or more[6,18b] of the Yogic practices, we presented an integral approach in that report[7]. We present in this report the basis of such an approach[18]. An attempt is made to present this basis in tune with the Yoga tradition, culled out from the original texts of Upanisatas and Yoga [19,18].

2. Concept of Health and Yoga

According to the World Health Organisation ('WHO') the level of Health is defined as a state of complete physical, mental, and social well being and not merely an absence of disease or infirmity[12]. 'WHO' also suggests a fourth dimension-spiritual Health. It is clear from this definition that health and ill-health are not two discrete entities as commonly understood but health should be conceived as a continuous function indicating the state of well being (Figure 1). In the 3rd quadrant the region of ill-health representing what normally we designate as 'Sickness' is depicted. Below this, man acts instinctively and is akin to an animal man.* Coming to the first quadrant, the region of 'Normal Man' with normal health is indicated. As one moves along the line further up, he becomes still healthier featured by the dormant faculties expressing more vividly in man. This is shown as the region of Super Man, an evolved

*Food, Sleep, Fear & Procreation (instinctive actions) are common to men and animals. It is the conscious thinking faculty, the power of descriminiation that characterises man.

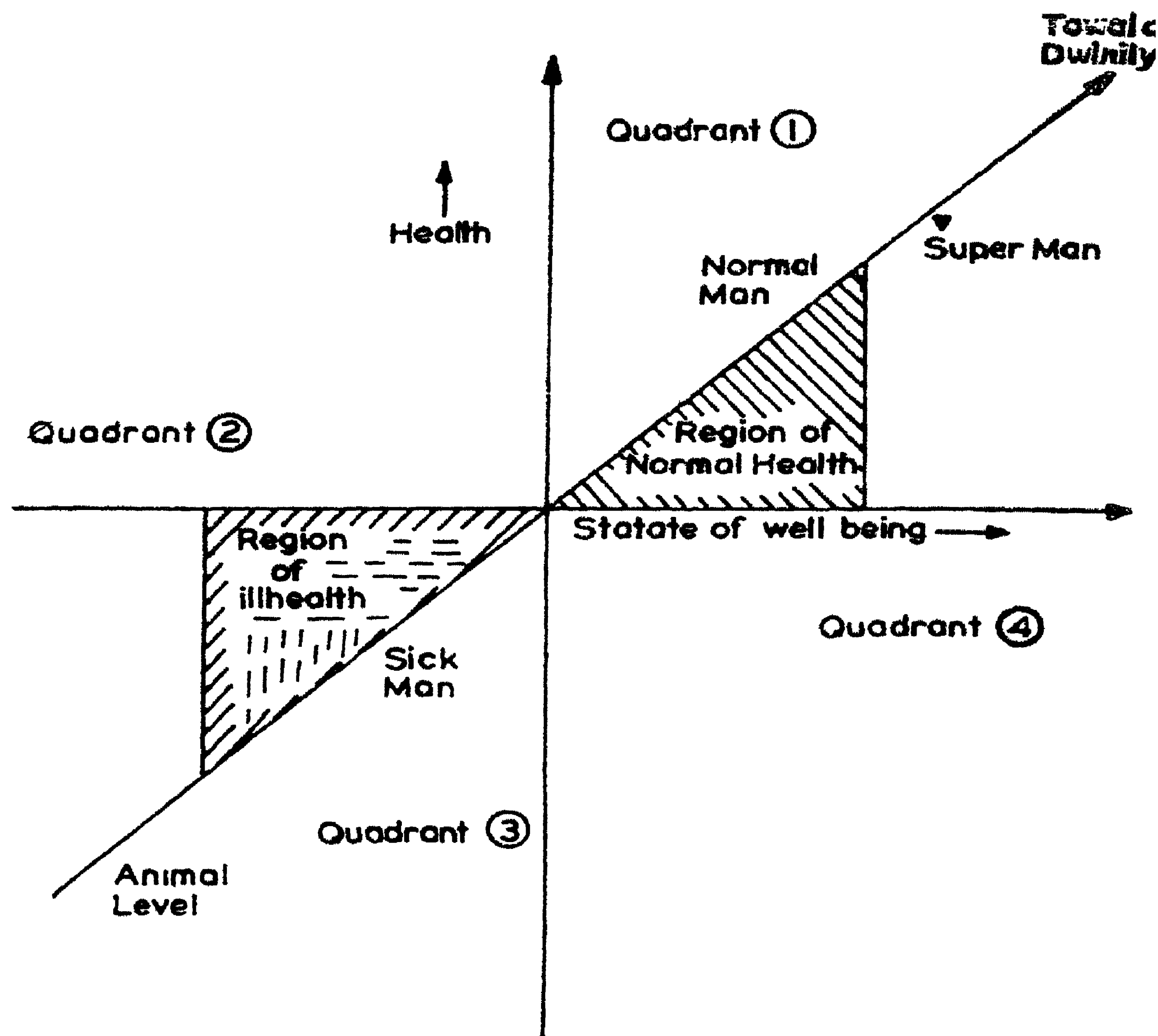


Fig. 1. Concept of Health

being from the human spectrum. The limitations of normal man namely the strong urges of thirst, hunger, fear and sex will be reduced greatly and will come under control fully. In the concept of Sri Aurobindo[17], the new faculties of deeper perceptions of the world beyond the five senses emerge in this phase of superhuman race. Further growth leads man to unfold deeper layers of consciousness and widens the spectrum of his knowledge to move towards divinity or perfection. In this march towards perfection, Yoga is a systematic conscious process for accelerating the growth of a human being from his animal level to normalcy, then to super human level and ultimately to divinity. It is a systematic methodology for an all-round per-

sonality development-physical, mental, intellectual, emotional and spiritual components of man. Thus, Yoga in its general methodology for the growth of man to divine heights includes techniques for therepeutic applications in making man healthier.

Before we proceed to understand the generation and amplification of illnesses, we present in the next section the Yogic concept of 'Sheaths of human existence'.

3. The Five Sheaths of Our Existence

Notwithstanding the sincere and subtle (atomic level) researches, the attempts to understand life as an offshoot of matter, a conglomeration of a complex configuration of atoms and molecules (called DNA & RNA), are leading man to regions of greater complexity * The decades of subtler and expensive research have yielded much less fruit than expected.

However, better understanding of life appear to be forthcoming with efforts directed in fields of modern psychology[10] and Parapsychology[11]. The forerunner of many of these efforts could be traced back to the work of Kirlian[19,13,21]. Controversies apart, Kirlian photography triggered the interest of a large number of scientists and technologists all over the world. Investigations into the unknown regions of human existence started unravelling the mysteries of 'life'. Parapsychology Institutes have grown in number. Scientists have started reconsidering their hypothesis that 'life' also is an emergence from matter. They recognize some existence beyond the physical body. The scientific study of the human Aura by Tart[15] (See Page 137) the professor of psychology at the University of California at Davis, USA, delineates the following sheaths of human aura:

*The ambitions of the microbiologists when gene was recognised as the smallest unit of life, were aptly presented in one of the best seller popular magazines in USA thus.

USA 1975: Creation of test tube babies
1980: Control of Sex in babies
1985: Recognition of qualities in babies
1990: Controlling the same
2000. Birth of the genius!

'What would happen if many Hitlers are born?' the best-seller cautioned the microbiologists!

1. The physical aura
2. The psychological aura
3. The psychical aura
4. The projected aura.

In relating the experience of the psychics the terms human aura, Etheric double, Astral body, Thought-forms[15] etc have often been used. Nirmala has summarised the various systems about the layers of consciousness as depicted in Indian philosophical and Yogic texts.

In the tradition of Yoga and Upaniṣads,* there are five sheaths of existence of man[13]. The first and the grossest—the physical frame which we are all so familiar is called *Annamaya Kośa.* The second subtler sheath is the '*Prānamaya Kośa*' featured by the predominance of *Prāna,* the life principle. Through the invisible channels called Nāḍis in this sheath flow the *Prāna.*

The next sheaths in the order of subtiolity are

3. MANOMAYA
4. VIGNĀNAMAYA
5. ĀNANDAMAYA KOSAS

A Schematic shown in Fig 2 indicates Ānandamaya Kośa as the innermost and the subtlest. As the sheaths become subtler, the freedom of operation in the living beings increases, the bondage decreases and the bliss associated with it also increases. While in Manomaya Kośa the creative power predominates, in Vignānamaya Kośa it is the power to discern and descriminate. Bliss is embodied in Ānandamaya Kośa, the highest stage of evolution in the manifested existence. It is the subtlest among the 5 sheaths of existence. In his journey towards the Ultimate, Man crosses these sheaths of existence one by one. Through analysis, called 'Panca Kośa Viveka' (Knowing through experiencing his five sheaths of existence)[18] and the associated practices called 'Tapas' man transforms himself by gradually getting relieved from the bondages and constrictions of each

*Standard International code is used to transliterate Sanskrit words and lines.

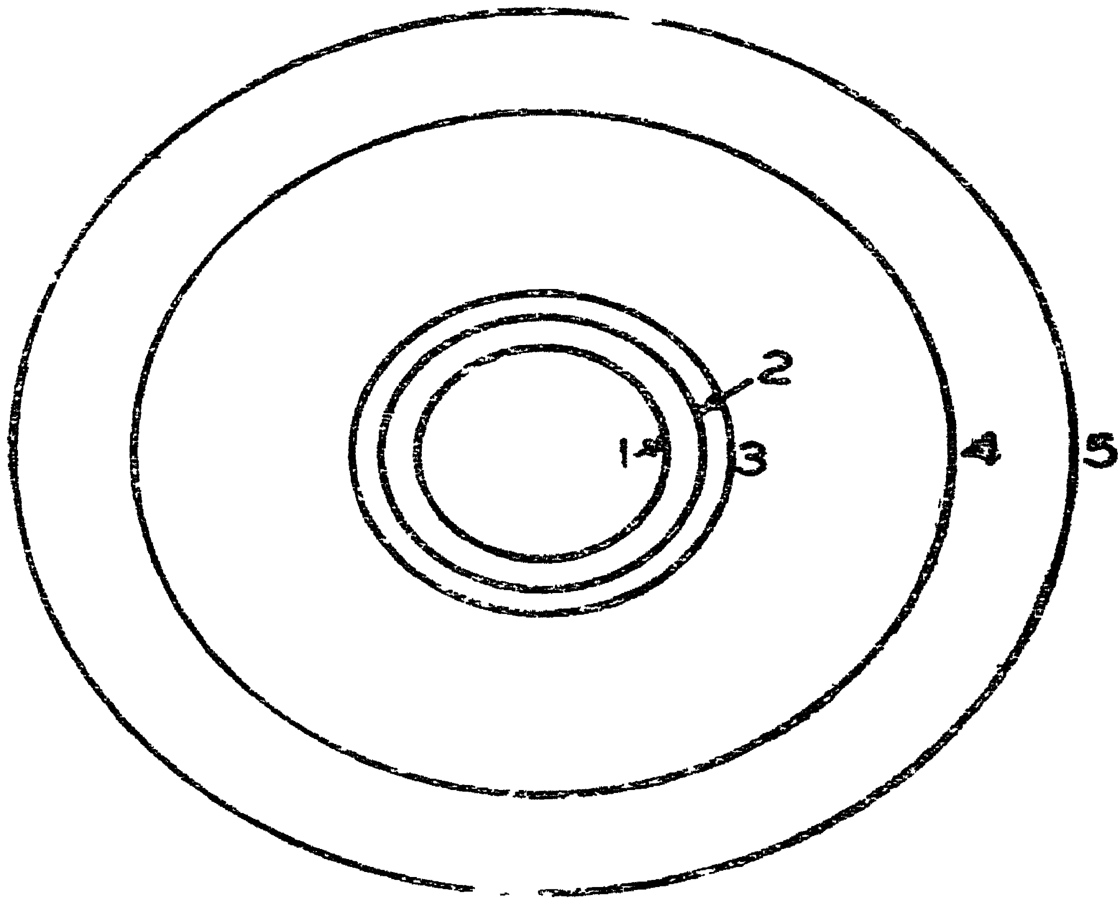


Fig. 2 The five Sheaths (Kośas) of our exsitence

1. ĀNANDAMAYA KOŚA
2. VIJNĀNAMAYA KOŚA
3. MANOMAYA KOŚA
4. PRĀNAMAYA KOŚA
5. ANNAMAYA KOŚA

sheath. This is one of the methods of reaching the ultimate goal enumerated and described in the Upaniśats.

4 The Science of Illnesses

In Ānandamaya Kośa a man is the healthiest with a perfect harmony and balance of all his faculties. At Vijnānamaya Kośa there are movements, but are channelised in the right direction. As such, it is in the Manomaya level that imbalances start, say the Yoga texts (See Appendix 1) Likes and dislikes have come to play at this level. These imbalances amplify themselves resulting in mental illnesses called 'Ādhis'. At this stage there

are no symptoms at the physical level. Prompted by the perpetual growth of desires, these mental diseases conceals in us, they begin to manifest themselves externally. Gradually they percolate to the physical frame. Preponderance of Ajnāna (ignorance about his real state of bliss) leads him to perform wrong actions as the eating of unwholesome food, living in unhealthy dwellings, doing things at untimely hours, injuries inflicted, association with the wicked, evil thoughts etc. These breed physical diseases called Vyadhis or the secondary diseases.

The Ādhis (primary diseases) are two fold-Sāmānya (ordinary) and Sāra (the essential). The former includes the diseases incidental to the body while the latter the rebirth to which man are subject. The Sāmānya are normally produced during the interactions with the world. These may be termed as Psychosomatic Ailments. When dealt with suitable techniques and congenial atmosphere, Ādhis of this ordinary type will vanish. Along with it are destroyed the physical ailments, Vyādhis, caused by these Ādhis (Ādhijāḥ Vyādhayah). The subtler Ādhis of the essential type, 'Sāra' which cause the birth of the physical body can be destroyed only by the Realization of the causal states of mind and a corresponding ability to live in Vijnānamaya and Ānandamaya Kośas. In that case, man transcends the cycles of birth and death.

This concept of Vyādhis caused by Ādhis is summarised schematically in Figure 3. The figure also depicts the second class of ailments—Anādhijāḥ Vyādhayah—those not originated by mind. These would probably include the infectious and contageous diseases. Through the conventional medicines (the chemetherapy of modern medicine can come under this heading), Mantras (with their natural vibrational characteristics) and good actions (bringing about the purity of mind, the bliss developing in the body, the Prāṇa flowing freely and thefood getting digested and assimilated properly) the diseases will get vanished.

5. The Psychosomatic Illnesses

Among the two types of Ādhis, described in the previous section the Sāmānya (ordinary) type corresponds to the modern

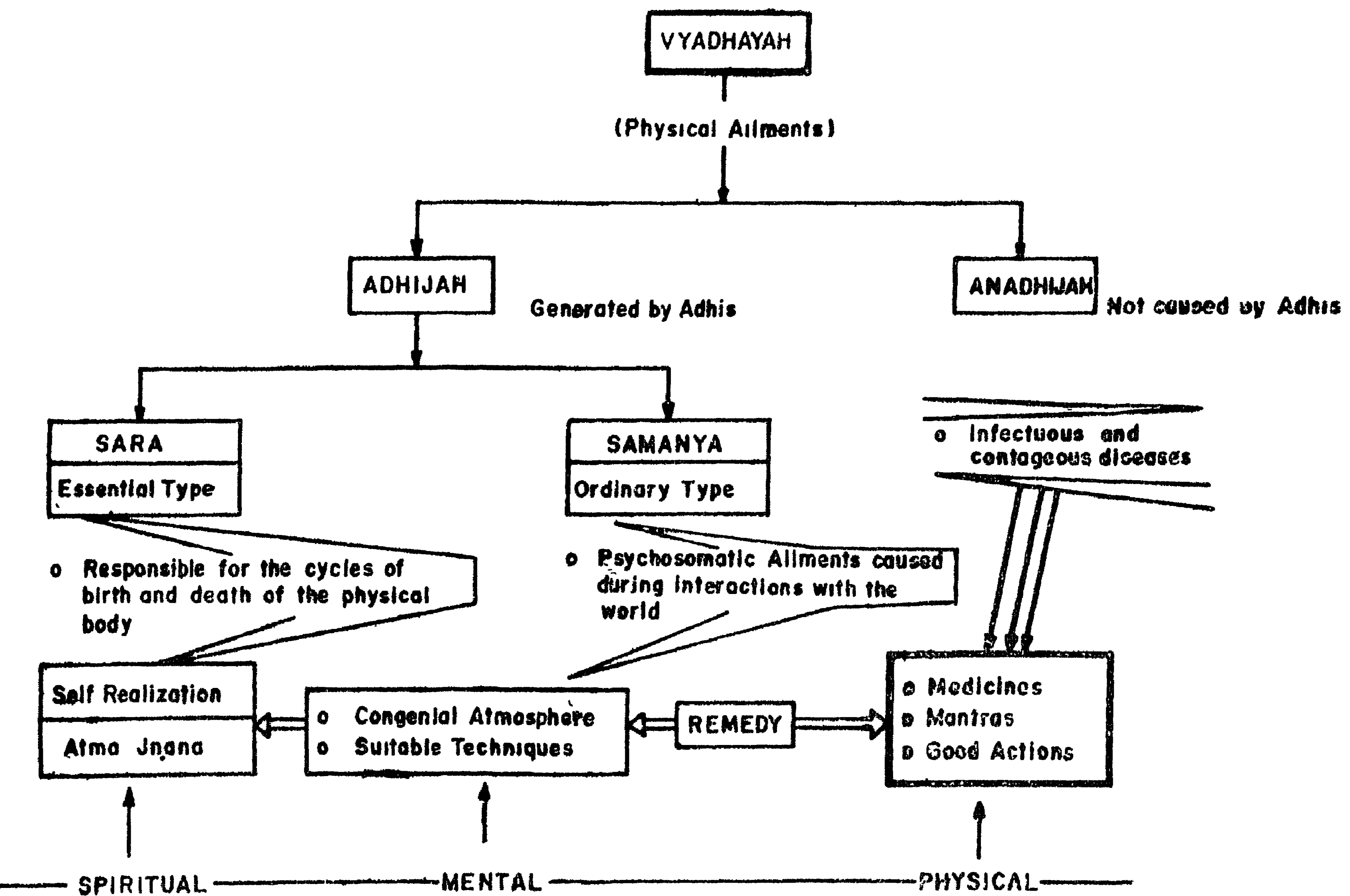


Fig. 3. A Schematic of our A·lments
(See Appendix 1)

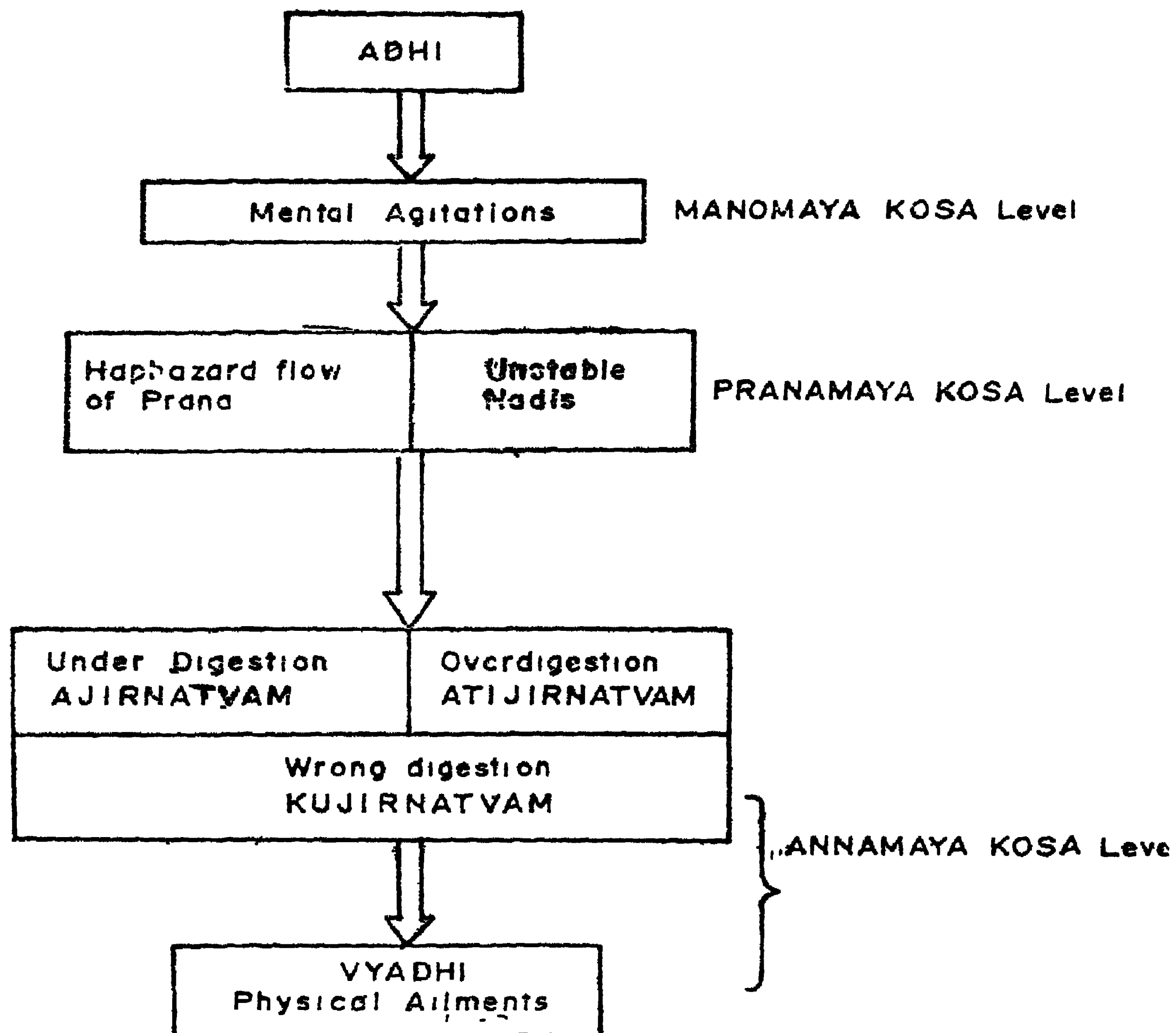


Fig 4. The Science of Psychosomatic Ailments

psychosomatic ailments. The details as to the genesis and destruction of these psychosomatic ailments are presented in the second portion of Appendix 1 (Sloka 15 onwards).

When the Mind is agitated during our interactions with the world at large, the physical body also follows in its wake. These agitations cause violent fluctuations in the flow of Prāṇa in the Nādis. The Prāṇa flows in wrong paths flying from one to other without rhythm and harmony. The Nadis can no more, in this condition, maintain stability and steadiness, but quiver. Due to these disturbances in the Prāṇa and unsteadiness in the Nādis, the food does not get properly digested. There arises Kjīrnatvam (wrong digestion) and Ajīhṇatvan (Non digestion) and

Atijīrṇatvam (Over Digestion). When this improperly digested food settles down in the body amidst such commotion, it results in ailments of the psychosomatic type. This process of Ādhi becoming Vyādhi is shown schematically in Fig 4. Contained in this process of generation of psychosomatic ailments is the method for treating such ailments.

6 The Integrated Approach

Reverting to the schematic in Figure 2, we can now see that the disturbances in the Manomaya Kośa percolates into the physical sheath (Annamaya Kośa) through the Prāṇamaya Kośa. Hence, in the treatment of these psychosomatic ailments it becomes mandatory to work at all these levels of our existence to bring about the quickest results. The integrated approach, thus, consists in not only dealing with physical sheath, the relief of which could at best be temporary (as is happening with the drugs used in modern medicine to treat diseases of the psychosomatic type like Asthma, Diabetes Mellitus, Hypertension, etc.) but also using techniques to operate on different sheaths of our existence. The large number of Yogic practices available in the texts of Yoga and Upaniṣats are adopted to balance and harmonise the disturbances at each of the Kośas and tackle this set of complex psychosomatic ailments.

(A) Annamaya Kośa: The Physical Sheath

Kriyas, physical movements and Yogasanas[6] are used to operate at the Annamaya Kośa level and to remove the physical symptoms of the ailments.

(i) Kriyas are Yogic processes described in Hatha Yoga to cleanse the inner organs of our body. They bring about the following effects[20,723]:

(a) Activating and revitalising the organs
(b) Toning up their functions
(c) Desensitization
and (d) Development of deep internal awareness. Among the major Kriyas enumerated in the texts on

Yoga[20,23], simplified versions of a few Kriyās[26] like Cathetor Neti, Jala Neti, Kapāla bhāti, Agnisāra, Vāman Dhouti etc (Kunjal Kriya) are used extensively.

(ii) Physical exercises and Movements

Very simple physical movements to mobilise and activate particularly affected parts of the body are used. Some easy physical exercises are adopted[26] to fulfil the needs of the particular ailments to

(a) loosen the joints
(b) stretch and relax the muscles
(c) improve the forebearence power
and (d) develop stamina.

(iii) *Yogāsanas*:

Yogāsanas are physical postures often imitating the natural positions of the animals meant to tranquil the mind. Through these postures are brought the physical revitalization and deep relaxation, and mental calmness. Appendix 2 details out the characteristic of Yogāsanas, clearly distinguishing them from physical exercises.

(B) Krāṇamaya Kośa: The Sheath of Prāṇa.

Prāṇa is the basic life principle. Prāṇāyāma is a process for gaining control over Prāṇa. Appendix 3 describes the 5 manifestations of Prāṇa in the humam system as depicted in Praśnopaniṣat [18a] and the corresponding most comprehensive definition of Prāṇāyāma. Also the conventional Prāṇāyāma through regulation of breath is described therein. Differences between normal breathing, Kriyā and Prāṇāyāma are clearly depicted.

Through the practice of proper breathing, Kriyās and Prāṇāyāma, we start seperating on the Prāṇamaya Kośa. Suitable types of Prāṇāyāma and breathing help to remove the random agitations in Prāṇic flows in the Prāṇāsāya Kośa. Thus, the ailments are handled at this Prāṇamaya Kośa level.

(C) Manomaya Kośa

A direct operation on this level is made possible by the last 3 limbs of Aṣtānga Yoga of Patanjali[17a]—Bhāraṇā, Dhyāna and Samādhi. The culturing of mind is accomplished by focussing of the mind (Dhāraṇa) initially and followed by relaxed dwelling of the mind in a single thought (Dhyāna) for longer and longer durations leading ultimately to superconsciousness (Samādhi) A progressive habituation allows the mind to remain relaxed during the period of meditation (Dhyāna) The benefits of Transcendental Meditation, a simple standardised technique are numerous, interesting and noteworthy[1,3]. Its application to treat many psychosomatic ailments has become popular[1,3,5,8].

To handle and gain control over the basic cause for mental agitations, we use the Yoga techniques to control our emotions. A devotional session containing prayers, Chants, Bhajans, Nāmāvalis, Dhuns, Stotras etc., help to build a congenial atmosphere to evoke, recognise, attenuate and dissipate the emotions Thus, control over emotions is obtained through the devotional session The emotional imbalances and upsurges are eliminated by such control.

(D) Vijnānamaya Kośa

A basic understanding is the key to operate from Vijnānamaya Kośa. Upaniṣats are the treasury of such knowledge which is the redeemer of all miseries and obsession. It is the lack of that inner Jnāna which is responsible for many wrong habits, agitations etc. The Happiness Analysis—Ānanda Mimāmsa of the Taitteriya Upaniṣat handles the most fundamental problem relevant to all living creatures. The analysis [18,a27] systematically leads the reader to that substratum from which Prāṇa and mind emerge—the Ānanda Maya Kośa. It helps the person to change his attitude of greed and deep attachment to material possessions and enjoyments towards the realisation that happiness is within and 'each one of us' in our causal state is 'Ānanda' embodied.[5,14] Result, man's outlook in life changes. Knowledge burns the strong attachments, obsessions, likes and dislikes which are the basic reasons for the agitations of mind. The Sāra type of Ādhis can only be removed by this knowledge (Ātma-jnāna or

Self-Realisation).[14] Hence the participants are exposed to this dimension of human evolution during the sessions

This integrated approach is being used in our Yoga Therapy and Research Centres at Kanyakumari and Bangalore. Our earlier report No. VKYTRC/001/RK/80 summarised the results of our work on various psychosomatic ailments like Bronchial Asthma, Diabetes Mellitus, Hypertension and cardiac problems, Digestive disorders etc. Future reports which are now in the offing deal with our more systematic and detailed work connected with the above ailments.

7. Summary & Conclusions

1. This report presents the basis of an Integral Approach used in the treatment of psychosomatic ailments posing a challenge to the modern medical world
2. The approach has deep roots in Upaniṣats and texts on Yoga.
3. A classification of ailments and the science of illnesses as portrayed in Yogic text is presented
4. Originating at the Manomaya Kośa level, the 3rd among the 5 sheaths of our existence, the agitations of mind cause imbalances and disturbances in the Prāṇamaya Kośa level. The disturbed Prāṇic flows and unstable 'Nādis', the channels of Prāṇa do not allow the food to be digested properly. Overdigestion, under digestion and wrong digestion bring about physical symptoms at the grossest *Annamaya Kośa* level. This is the genesis of psychosomatic ailments.
5. Operating on all these Kośas to restore the balance is the method for handling these complex ailments.
6. Yogic practices at the Annamaya Kośa level include Kriyas, physical movements, and exercises and Yogāsanas. To restore the balance in the *Prāṇayama Kośa* level, we use breathing and Prāṇāyāma. Operating at *Manomaya* level by Dhāraṇa, Dhyāna and Samādhi (the direct method of controlling the mind—the Aṣṭānga *Yoga of Patañjali*), coupled with Devotional session (to control the emotions and overcome the emotional imbalances and upsurges). Knowledge about the ailments and their genesis by

Ajnāna and wrong direction in our interactions with the world, as postulated in Upaniṣats (by Ānanda Mimāmsa—Happiness Analysis) help to operate at *Vijanamaya* level, leading to the healthiest state of bliss, *Ānandāmaya Kośa*

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27 YUVA BHARATI (i) 'Experiments in Happiness', Feb 1980 to March 1981

(ii) The mystery of Happiness

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Appendix I

The English translation is extracted from Ref. 9

Rāma interposed and said: Please enlighten me as to the origin and destruction of mental and bodily disease. In answer to this Vasiṣṭha continued: The pains that afflict the body are called the secondary diseases, whilst the Vāsanā-s that affect the mind are termed mental or primary diseases. We have reached our present state through the absence of the transcendental Jnāna, want of mastery over our sense-organs and the perpetual growth of desire and egoism in the mind. And our delusion becomes intensified in us by forgetting the degradation of our state through such causes. With the growth of such delusion, the mental disease also congeals in us like the snows of winter. When the intense desires of a person begin to manifest themselves externally and the Ajnāna in him preponderates, he performs fearful Karman-s and these in their turn breed bodily diseases. *The body is further subject to diseases through such* actions as the eating of unwholesome food, living in unhealthy countries, doing things at unseasonable hours, injuries inflicted, association with the wicked, longing after improper things, evil desires, bad thoughts, the distention and contraction of the orifices of the Nāḍī-s in the joints, etc and the interrupted flow of the beneficial Prāṇa-s throughout the body—these cause the body to wither. These flourish in the form of diseases in the body, waxing and waning like the floods in a river during the different seasons. The body attracts effects to itself according to the nature of its countless affinities, good or bad, whether in previous births or in the present one. Thus we see diseases, primary and secondary, arise through the fivefold Bhūta-s (elements).

Now listen, Oh Rāma, to the manner in which the two

forms of disease, primary and secondary, are destroyed in two ways. The wise say that primary disease has two sub-divisions: sāmānya (ordinary) and sāra (essential). The former includes the diseases incidental to the body, while the latter the rebirth to which men are subject. If the diseases which afflict this body return to their primal source, then they are destroyed. Their primary causes being (bad) thoughts, if these thoughts are destroyed, all bodily diseases will vanish. But the disease of rebirth, coming under the head of sāra, will never end except through Ātma-jnāna. Is it possible to suppose that the misapprehension of a serpent in a rope can be removed except through the discovery of the real rope? But those grievous diseases of the body which do not arise through the original cause can be extirpated be Mantra-s, medicine and the many means used by men will versed in medical lore. I need not expatiate upon this subject any further here.

Here Rāma asked Vasiṣṭha how mental diseases arise and how they are destroyed. Vasiṣṭha proceeded. When the Manas is agitated, then this body also follows in its wake. And when the body is agitated, then there is no proper perception of the things that are in one's way and Prā*n*a flies from its even path on to a bad road, staggering like an animal wounded by an arrow. Through such agitation, Prā*n*a, instead of pervading the whole body steadily and equally, vibrates everywhere at an unequal rate. Therefore the N*ā*d*ī*-s do not maintain a steady position, but quiver. Then to the body which is the receptacle of food digested partially or completely, the N*ā*dī-s are simply death, because of the fluctuation of the Pr*ā*na-s The food which settles down in this body amidst such commotion is transformed into incurable diseases. Thus through the primary cause (of the mind) the disease of the body is generated. If this primary cause be annihilated at its root then all diseases will be destroyed. Now hear of the path by which diseases may be removed by the uttering of Mantra-s Like base gold which, when placed in the crucible, is transmuted through alchemical processes into pure gold, the mind is rendered unfailingly pure through true, virtuous and pure actions and by serving the wise. In the mind purified thus there is unalloyed bliss. Is not the whole world exhilarated with joy when the soft and delicious moon begins

to shed its silvery light? If the mind becomes purified with true Sattvaguṇa, then Prāṇa-vāyu will begin to circulate freely throughout the body, the food taken will be digested properly and hence no diseases will arise. I have thus described to you the path by which the two kinds of diseases can be destroyed.

Appendix II

Physical Exercises & Yogāsanas

Operation at the Annamaya Kośa level involves the use of physical movements, exercises and Yogic Postures. The first two are called Sithilikarana Vyāyāma.

(A) Śithilikarana Vyāyāma[20]

Before we take up the practice of Asanas we have to prepare ourselves thoroughly so that, the performance becomes easy as well as effective. Āsanas involve articulation and bending. Generally the joints are stiff and the muscles are tight, and the preparation is meant for loosening the joints and stretching so that the bending and articulation becomes easy.

Śithilīkarana Vyāyāma or the stretching and loosening exercises aim at such a preparation. These exercises are physical exercises, where predominantly bendings and stretchings are involved. A breathing pattern is also suggested for effectiveness. It is generally observed that if the practice of asanas is taken up directly, there develops pain in the body. This pain is also avoided by doing the Śithilikarana Vyāyāma. Though this Vyāyāma is at the physical level if we incorporate the relaxation in action it can be made highly beneficial. They bring about.

(i) Mobility of joints & flexibility of muscles.
(ii) Develops physical stamina.

(A) Physical Exercises and Yogic Practices

From time immemorial man is trying to be free from disease, to make his body handsome, to make it strong and ultimately

make it immortal. The search for the fulfilment of these desires brought about the development of physical culture where various types of exercises are employed. The following is the broad classification of the various types of exercises that are in vogue today. Exercise can be broadly classified in to two types (A) Passive and (B) Active. Under Passive type we have Massage and manipulation of muscles by others, where the beneficiary is passive. Whereas in the Active type we have exercises emphasizing on different characteristics, which are enumerated below.

Strength: Body building and weight lifting utilizing the implements like bar-bells, dumb-bells and also vigorous exercises like pullups and push ups etc.

Speed: Sports and athletics etc.

Dexterity: Acrobatics, gymnastics, archery, fencing, lathi, boxing etc.

Kndurance: Under this category there are two subdivisions, namely those for Health and Hygiene—in which there are further subdivisions namely Yogic, and Non-Yogic involving practices of isometric type. The other for Recreation in which walking, hiking swimming, games etc

In the above classification for the purpose of getting the benefit from the course we can get common features involved in all Non-Yogic type of exercises. They involve speed, jerks and repetition. They are energy expending processes, working in the muscular and circulatory levels. The attitude of competition, showmanship and materialistic gain often developes tensions etc Physio therapy predominantly adopts these physical exercises and movements to treat several ailments connected with muscles, joints and nerves.

The mode of performing Yogāsanas differ from expert to expert. Looking at large, we can classify the systems of Yogasanas into two categories:

(1) Dynamic Āsanas:

This has transformation in the structure of the body as aim. As the name implies, the characteristics of this system of Yogāsanas are speed and repetition. All the āsanas involve the articulation of the spine-forward, backward lateral as well as twist. While the physical exercises (Non-Yogic) are effective on

muscular and circulatory as well as respiratory systems, the yogic exercises have an effect on nervous and glandular systems as well. The Dynamic Yogāsanas stimulate the nervous and glandular systems resulting in evocation of energy. This energy combats laziness by shattering Tamas and gives rise to Rajas (activity). This particular system is recommended for children as well as people who are lethargic. The suryanamaskār and Śithilikaraṇa Vyāyāma can be included in this system of dynamic Yogāsanas as it is a combination of different asanas, and involves speed. The practice is accompanied by Yamas (Restraints) and Niyamas (Observations).

(ii) Yogāsanas of the second type: Relaxing Āsanas:

The aim of this system is to develop an inner awareness and unfold the higher levels of consciousness. Continuity in movement, that is, without jerks, slowness and maintenance characterise this system. This results in strength and forbearance—Titīkṣa. There is also a proportionate growth of the body. The control of food and other Yamas and niyamas are the companions of this System. While the non-yogic exercises and dynamic Yogāsanas effect in expenditure of energy and perspiration, the Yogāsanas based on Patanjali's phorisms result in deep relaxation and energy conservation, resulting in jreshness. This is basically a nerve culture as it calms down the nerves.

Stages in Yogāsanas

Most people are of the opinion that Yogāsanas are meant for keeping the body fit and healthy. In other words they limit the asanas to physical exercises. It is just like going to a millonaire and asking for a rupee!

'Āsanas' forms one 'anga' or limb of Patanjali's eight limbed Yoga. This means that he has introduced it with a specific purpose of utilizing the body of which most of us are aware to develop an inner awareness and thus reach higher consciousness. We saw in the earlier discussion that Yogāsanas help us to develop for-bearance because of maintenance. While maintaining we go through three stages which are described below.

Initially, the posture is shaky. A beginner can not reach the final posture immediately. After gradual practice he reaches

and achieves steadiness and this stage called 'Sthira'. In this stage, however he is not able to maintain it for the prescribed length of time due to the effort involved. When he withdraws the effort by relaxation as per the suggestion of Patanjali[22] in the first half of Aphorism. II-47 ' Prayatna-Saithilya'', he reaches the stage 'Cira' in which he is able to maintain it for the prescribed length of time. The mind control begins here. In 'Sthira' the mind gets concentrated on the process of being in the final posture, but as the posture becomes effortless and natural the mind according to its nature starts wandering To avoid this Patanjali gives us a method in the next half of the same Sūtra (II-47) "Ananta-Samāpatti" or contemplation on the infinite Here the word 'Ananta' can be interpreted as the chosen deity, or the chosen sound (Mantra) or just expansiveness. When this is done the mind calms down and as it stays in silence it starts experiencing the bliss and this stage is called as 'Sukha'. Patanjali defines the nature of Asana in the previous Sutra (II-46) Viz: "Sthira-Sukham āsanam"-Posture (should be) steady and comfortable. The Sukha stage is comparable to Dhyāna. If the posture is 'Sukha' for an appreciably long time-subjectively varient-the person enters 'Asana-Siddhi' which is the superconscious state or 'Samādhi'. This is given by the subsequent sutra (II-48) "tato dvandvanabhighatah"-From that (mastery of the posture) no assaults from the pairs of opposites.

This is how we derive infinitely more than just the physical benefits

(C) An Ideal Healthy Boby

All the attempts of Kamsa to kill Kṛṣṇa have failed. He hits upon a brilliant plan of which he is sure of success. He hosts a carnival of fun and games to which he invites all people including Kṛṣṇa as well as Balarama. The obstacles are cleverly spaced from the main gate onwards. A rogue elephant attacks Kṛṣṇa and he kills it. Finally, the court wrestler Cāṇura challenges Kṛṣṇa and the wrestling bout is very beautiful described in Srimad Bhagavat.

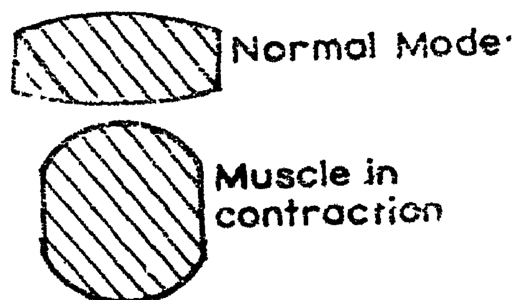
Cāṇura is described as 'man-mountain' with very heavy body having rippling muscles exhibiting strength in every way.

The gestures, facial expressions are also given. He is said to be tense, stiff, straining every muscle with an angry face. Contrary to it Kṛṣṇa's body described in it as, well-proportioned with a balanced growth, agile, capable of great speed in movements, having good reflexes, highly flexible, Komala-petal soft but stone hard when situation arises, naturally relaxed during action due to lack of strain. His psychology is also very congenial. his face is always smiling as if he is ready for sport, very keen observation due to tranquillity of mind and clarity of thought. He keenly observes the 'man-mountain' and notes that he has a slight limp on the right leg due to an injury in a past fight. When the fight begins, Krsna fights-effortlessly and wins by using the strength of Cānura on himself!

This gives us the characteristics of an ideal body—

1. Balanced and harmonious growth.
2. Great speed in movement due to agility.
3. Highly flexible.
4. Komala-but stone hard when the need arises.
5. Relaxation in action and hence conservation of energy.
6. Tranquillity of mind and clarity of thought. That is the harmony of thought. That is, the harmony of body and mind.

These characteristics can be achieved with the persistent and regular practice of Yogāsanas. We shall have to go into some physiological details to understand this.





A muscle is said to be working when it is contracted. For example, if we want to lift the fore-arm then we have to work the biceps muscle and we see that when the fore-arm is raised then the bicep bulges indicating the contraction. Even when we

are not working the muscle it is under partial contraction. A certain amount of energy is spent to keep it under this condition. This state of partial contraction is known as muscle tone. When we relax the muscle it elongates and the muscle Tone decreases. In the Yogasanas the muscle gets elongated and stretched because of the nature of the postures and the maintenance This is how the body attains the softness or Komalata. The figure illustrates the muscle in different conditions. The relaxation in action is achieved by the conscious relaxation while in the posture The specialised nerve endings in the muscle fibres called the proprioceptors send the nerve-impulses to the brain giving the details of the amount of tension In layman's language we can say that the proprioceptors provide us a sense of being The messages through nerve impulses is stronger when it is contracted or stretched and this we utilise in learning the art of relaxation by the method of autosuggestion. Thus the nervous system also gets toned up giving rise to better reflexes.

The effect of Yogāsanas on mind discussed in (B) indicated that Yogāsanas not only work on the Annamaya Kośa, but also operate in tune with bringing stability and harmony in other Kośas also.

Appendix III

(a) Prā*n*a & Prā*n*āyāma

The innate urge to grow characterises all living creatures. Locomotion, Reproduction as distinct from the inert dormant mineral world characterised the first offshoot of life. The vegetable kingdom in its higher species exhibits, greater locomotion. Examples are 'Touch-me-not' plants, 'Non vegetarian' plants (Drosera) etc. The next unfoldment we see is the movement in animals drawn by the basic urges for Food, Sleep, Fear and Procreation. All activities are governed by instincts, in tune with these basic urges. In the higher species, the forefathers of 'Man', we find life blossoming with thinking. In Man, this 'thinking' is leading to greater regulation of all actions through discrimination rather than the unthinking instincts. Conscious thinking featured by discrimination replaces the instinctive behaviour. The higher faculties of man, making him a Super man and a Divine Man are now being brought to the fore through Yoga.

That basic vitality, key to life, is what we term Prāna. Thus, Prāna is the basic life principle. We believe that everything in creation has Prāna. Growth of Prāna from a lower strata to higher strata is the process that characterises life. In man, this process is being accelerated by the conscious discrimination faculty and is called 'Prānāyāma' regulation of Prāna. 'While the goal of life is to manifest the divinity in Man', the process of manifestation, a scientific method is 'Prānāyāma' or in general 'Yoga'.

The normal misconceptions about Prāna arise due to partial understanding that Prāna is the air entering in and going out; that which governs breath; that it is nothing but nerve impulses etc. But as we have seen Prāna is the basic life principle. In its dormant form, it exists in the inert world. In the vegetable kingdom, the primary facets of Prāna, we can

observe, started manifesting. As Prāna manifests more and more in the Animal and Human spectrums, newer faculties emerge. The structure of the body is also suitably transformed giving scope to the fuller manifestations of the higher emerging faculties—the mobile limbs and the senses in the animal world and the complex anatomy of the human body. In different parts of the body, different aspects of Prāna work with proper coordination and organisation between them In the human system our seers have recognised five major facets of Prāna carrying on five major functions.

The Mukhya Prāna (the chief Prāna) has five manifestations namely Prāna, Apāna, Samāna, Vyāna and Udāna. They are described in Prasna Upaniṣat as follows:

Payupasthe Apāṇam Cakṣuh Śrothre Mukha Nāsikābhyām Prānah Swayam Pratiṣthate Madhye thu Samānah.

"The Apana is in the Organs of excretion and procreation; in the eye and the ear as well as in the mouth and the nose dwells the Prāṇa himself; and in the middle is the Samāna".

The manifestation of Chief Prana in the lower regions of the abdomen is termed as Apāna. Prāna acts in the upper regions-face, nose etc. which essentially corresponds to the force which activatess breathing That which keeps the balance between the upper and lower forces (Prāṇa and Apana) is called Samāna. Vyana is defined as:

"hr,di, Hyesa Ātmā; Atraitadēkaśatam Nādīnam Tāsām Śatam Śatamēkaikaśyāḥ Dva Śaptat Pratiśakha Sahạsrāni Bhavantyāsu Vyānascarati".

"In the heart dwells Atman. There are (in the heart) a hundred branches in each one of the Nadis, and each of these branch Nādis again his seventy two thousand Nadis. In all these the Vyāna moves".

Vyāna is that aspect of Chief Prāṇa that flows through each and every Nādi. It coordinates the functions of different aspects of Prāṇa.

(c) Schools in Praṇayama

Normally there are three components of breathing—Inhalation, Exhalation & Stoppage of breath. They are termed Puraka, Recaka and Kumbhaka respectively. In Kūmbhaka the

stoppage of breath can occur in three ways: after inhalation (Puraka or Āntarya Kumbhaka), af er exhalation (Recaka or Śunya or Bahya Kumbhaka) and an automatic suspension of breath not due to a preceding process of breathing (Kevala Kumbhaka). This last variety, Kevala Kumbhaka is the aim of all Pranayamas. In this stage there is no force inside urging us to breathe in or out. A natural suspension of breath is accomplished. This may be induced for a short time by a preceeding Kriyā like Kapālabhāti due to hyper oxygenation we get a glimpse of what Kevala Kumbhaka is like. Recognition is half the solution But it should not end there. We must learn to induce this stage of automatic cessation of breath without the preceding Kriyā Thus, the real Kevala Kumbhaka is the goal of almost all breathing techniques we are getting acquainted with There are various effects of this Kevala Kumbhaka—the deep relaxation, lowered metabolic rate, serene blissfulness, expansiveness and single thought, essentially the effects of Dhyāna.

The ratio of Puraka, Āntarya Kumbhaka, Recaka and Bāhya Kumbhaka will be initially 4:4:4:2 (The numbers in the ratio could be taken as Secs) minimum number of rounds. Gradually as one progresses the Kumbhaka portion is increased 4:12 8:8, 4:16:8 12,—4 32:8:16 etc. As the time of Kumbhaka is increased more and more, some portion of the Kumbhaka will resemble Kevala Kumbhaka. Continued practice leads one to get at Kevala Kumbhaka stage more and more.

While in the second type, emphasizing the slowness of Recaka and Puraka, no forceful stoppage of breath—Kumbhaka—is used. Instead, the time taken for each inhalation and exhalation is made to increase gradually. Associated with it will be the deep relaxation. As one progresses, one finds that an automatic cessation of breath is resulting as illustrated in the figure.



At the change over regions from Recaka to Puraka and Puraka to Recaka, a smoothening takes place resulting in Kevala Kumbhaka.

Associated with the first school, there is the danger of premature energy evocation, Kundalini shooting up without proper overall purification of the system in those who start doing for long durations It may result in a disaster; neurotics and lunatics may be the outcome. One should work with precaution. The Major point, many such wrecks miss is the use of Bandhas with Kumbhaka—the Jalandhara and Mula Bandhas If this precaution is taken and a disciplined life is followed, one could use this school with no dangers

We have chosen the second, safe path Relaxation resulting from slowing down of breath is the key. Both schools have the same aim, but the second involves lesser violent changes. It is smooth. Hence, you can notice, that in all the Prā*n*āyāmās, we are not using Kumbhaka at all. But we would allow the automatic suspension of breath whenever it occurs. In fact, we should welcome it. Glimpses of Kevala Kumbhaka should be instilled in each and every Prānayāma That is the key. After prolonged practice of this method we proceed to introduce 'Kumbhaka' in the Prā*n*āyāma in the follow-up Camps.

> ' Athaikayordhvam Udānah. Punyena Punyam lokam Nayati, papenapa pam, Ubabhyāmeva Manusya lokam"

"And then, through one of them (Susumna) the Udāna carries (the soul) to the virtuous World by virtuous deeds, to the sinful World by the sinful acts, and by both to 'the world of men". And Udāna is the one that follows upwards in a subtle passage called Suṣumna. Normally this is not known to ordinary people. Prāṇāyāma is the science of regulating and gaining control over this Mukhya Prāna, allowing its fuller manifestations to emerge. But in particular we use regulation of breath to gain control over Prāṇa. Hence, we need to understand the difference between normal breathing (which is normally haphazard flowing randomly through one or both the nostrils), Kriya (like Kapālabhāti 20), Yogic full breathing and Prā*n*āyāma.

(b) Kriyas, Breathing & Prānayama

Table below depicts clearly the difference between the Kriyas, Yogic full breathing and Prānāyāma.

Table Depicting the Difference between Kriyas, Yogic Full Breathing and Prānāyāma

Effect	*Kriya*	*Yogic full breathing*	*Pranayama*
1. Breathing Rate	About 120/mt Washing away of CO_2 Increased Oxygen concentrat on	About 15/mt Full utilization of correct normal breathing	Less than 5/mt
2. Muscular	Exercised briskly	Complete Movement of muscles.	Controlled slow movement
3. Circulation	Greatly Increased greater concentration of Oxygen in blood stream.	Slightly increased. More O_2 gets absorbed.	Less than Normal
4 Nervous System	Quick, repetitive nerve impulses, stimulating in effect (Sympathetic chain activated)	Normalised nerve impulses.	Longer duration Nerve impulses (Sustained Parasympathetic activation)
5. Brain cells	Respiratory centre gets stimulated. It may stimulate other cells also.	Overactivity & under activity normalised.	Cells work with higher Co_2 content They are kept active with lesser O_2 Consumption.

6 Metabolic Rate ·	Increased greatly. Energy expendi-ture is more	Normalised. Proper utilization of energy.	Decreased considerably Energy conserved, Dorment energ es are evoked.
7. Over all effect	Shatters 'Tamas' Laxiness gone, man becomes active	Channelises the 'Rajas' Unnecessary Wastage of energy is cut. Becomes Healthier.	o Mind moves towards sil-ence o Potential capa-bility are evok-ed. o Greater effici-ency results. o Fresh, relaxed, *Dynamic*. o Blissfull.

Chapter 8

"No-option Yoga"—The Integral Yoga of Patanjali

DR SWAMI GITANANDA

We owe much to Maharishi Patanjali for his ability to collect and assess and later present a workable Yoga system in his *Yoga Sūtras*. This system popularly known by the term *Ashtānga Yoga* or the Yoga of Eight Limbs is the most integrated, wholistic view of Yoga that we have out of the hoary past.

Dating Patanjali as an author and the *Yoga Sūtra* as a literary work is difficult, and many eminent authorities have placed Patanjali as early as a thousand years B.C. Others have put him in the sixth century in this Christian era Most of the confusion comes from the name Patanjali which may have been used by numerous authors over a lengthy period of time. Patanjali may be a pseudonym or a nom-de-plume for the author of the *Yoga Sūtras* as it simply means "the joy of the Pathans," a race of North Indian people who were probably Vedic Āryans in origin. One Patanjali wrote a commentary on Panini's Grammar, the most exact work on Sanskrit ever written. Many believe that Patanjali and Panini were the same person. The famous Āyurvedic work by Charaka bears the stamp of Pānini's grammar and his knowledge of Yoga. I for one take all three to be one and the same author. Three ancient Sanskrt sources make a similar quote : "Charaka purified the body with Ayurveda; Panini purified our tongue (language) with his grammar : while Patanjali purified the mind with his Yoga". We have the grammar of Panini, but not his Yoga and medical work. We have the medical work of Charaka, but not his Yoga or his grammar. We have the Yoga of Patanjali, but not his life

science (Ayurveda) or his grammar. No doubt, the debate will long go on, but I encourage my Yoga students to see this trinity of great writers as the same author of the *Yoga Sūtras*. I place Panini in a pre-Buddhist time between eighth and nineth century B C.

The *Yoga Sūtras* is the most elaborate ancient work we have on Yoga. A serious practitioner of Yoga will find here in the *Sūtra* a concise, condensed and succinct presentation of Yoga. It is a *Sūtra* or a thread holding together 195 Sanskrit aphorisms that reach back into a distant past, its culture, its philosophy and indeed, its entire civilization The Sanskrit used by Patanjali is Yogically and scientifically concise One recognizes the hand of Patanjali because of this conciseness and the particular style of writing which he suggests in his grammatical work The terms he uses are not open to "poetic translation". We have no poetic license here as the *Sūtra* is a scientific work on Yoga and I believe that Patanjali's choice of the Sutra-style of Sanskrit presentation was deliberate because the syntactical requirements are reduced to the barest minimum, half sentences, literally no more than a string of nouns and adjectives often without auxillary verbs. This produces a skeleton of an idea that must be filled in by the knowledge of the reader. The *Yoga Sūtra* of Patanjali is not a work from which a new student of Yoga can get other than a framework of Yoga But one deeply involved in Yoga will find that Patanjali supplied a structure to build up a most elaborate integral Yoga

The modern *Yoga Sūtra* of Patanjali contains only 195 short verses or couplets. The original may have been much longer and may have been abridged or shortened by many other writers over the ages. Indeed, it would appear that there are many alterations in the so-called modern text and even interpolations in recent times. Even today modern translators of the *Yoga Sūtra* still continue to make Patanjali say what they want him to say. But this doesn't "wash" Patanjali is dealing with a Science of Sciences called Yoga One can't alter and change the terms of a science to suit one's fancy, without destroying the whole structure. One cannot put in or take out anything without altering the whole frame work. This is why I claim that the Yoga of Patanjali is "No—Option Yoga." The reader does not have the right to alter and change Patanjali's system for his

own whims., to substantiate his own lack of Yoga knowledge or his a-Yoga stance on life.

Patanjali ennunciates an integral Yoga that has a number of Yogas embodied in the total system. But we do not have the right to drop some of the Angas or branches of the Ashtanga Yoga because they do not suit our life style Notably in modern times those involved in Āsanas and Prāṇāyāmas dropped the need for Yama and Niyama, the prerequisite morality and ethics for a foundation for a Yoga life. Others who take to "meditation Yoga" drop all of the outer phases of Yoga: Yama, Niyama, Asana and Prāṇāyāma, as well as the inner phases of Pratyahara and Dhāraṇā and begin at Dhyāna, or meditation, as though the other steps are not necessary for this. This has brought out an incredible "Ego Yoga" amongst a certain group of "arm-chair Yogis" who disdain others who are still caught up with what they call "body Yoga". I believe that the "No—Option Yoga" of Patanjali is the most authentic path of Yoga available to modern man and the sooner we involve ourselves in wholistic integral Yoga, the better it will be for us and for Yoga.

Patanjali's *Yoga Sūtra* is divided into four sections or Padas. He does not get around to talking about his Ashtānga Yoga, the Yoga of Eight Limbs, until the 29th verse of the second Chapter "Sādhana Pāda". In his opening "Samādhi Pāda" Patanjali deals with the prerequisites of Yoga practice. This whole section is virtually a Yoga unto itself. In fifty-one verses Patanjali deals with what many call Sāmkhya Yoga, Kriyā Yoga, or Jñāña Yoga. Sāmkhya is a co-system of Yoga founded by Kapila and up to the time of Patanjali's codification of Yoga in his *Sutras* Yogis had to draw heavily on their cosmological philosophy from Sāmkhya. Patanjali ennunciates a Yoga cosmology in the "Samādhi Pāda" identifying Ātman, Paramātman with the Purusha. Self-realisation or identification with Ātman, Paramātman is the object of Yoga. So it becomes a working cosmology The experience of the Ātman-Paramātman by the Jīva is termed "Samādhi".

In fact, the first Pāda could be taken as the philosophy behind Laya Yoga, the Yoga of re-absorption into the Self or Ātman. But I take it to be a kind of Jnāna Yoga—a Yoga of wisdom, to outline to us the flaws in our nature that keep us

away from discovering the real Self. Patanjali states that Avidyā or ignorance is our main problem, and the removal of this ignorance can lead to self-realisation. He goes deeply into this problem by ennunciating the Pancha Kleshas or the Five Afflictions that restrict us in our development He details the problems of misconception, cognition, dual conceptions, false memory, and sleep. He details the fluctuations of these afflictions He states openly that our subconscious mind Chitta or memory holds us from unified living In the second verse of the first chapter he states, "The science of Yoga is attained to by controlling the fluctuations of sub-conscious memory." The whole first Pada is made up of constructions of how to sublimate objectionable energies, overcome pain and depression, how to hold the mind in concentration upon the Pranava *Aum*, and by sheer discipline rather than by any kind of belief attain to unified Cosmic Consciousness. It would do the new student of Yoga a great deal of good if they would study deeply the dictates of Patanjali in the first Pāda as the pre-Yoga practices of what he then enunciates to be Ashtānga or the Eight Limbed Yoga

In the first verse of the second chapter, Patanjali explains Kriyā Yoga, the Yoga of Spiritual Action. That involves body discipline, Tapas, self-introspection, Sādhyāya; and Ātman Prasādan, acceptance of Dharma-Karma-Moksha, duty, action and liberation, as the Yoga of spiritual action. In the modern text the third step is termed Īśvara Pranidhāna which I believe to be an interpolation in modern time. Why should Patanjali, a scientist of the highest rank, introduce the belief in God into his Sūtras ? Most modern commentators agree that the "Īśvara" mentioned in the text is not Īśvara-God", but rather the conceptual Self that arises as the result of Kriyā Yoga practice. Obviously, this is intended to mean, Ātman, the real Self. Pranidhāna is popularly translated as devotion but I believe that it should read "Prasādam", literally, "receiving one's Karma without rancor or complaint, and getting on with process of spiritual evolution." The second chapter is called "Sādhana Pāda" and rightly so. Sadhana is a conjunction of "Sat" and "Dhāranā," literally, "Truth fixation". Sādhana is Yoga, if interpreted properly. It is to be noted that the Kriyā Yoga of Patanjali takes in the last three Niymas or ethical observances of the second

phase of Patanjali's Ashtanga Yoga. At least two commentators on the *Yoga Sūtra* add that the total observation of the five restraints, Pancha Yama, and the Five Ethical Observances, Pancha Niyama, are represented as a higher Kriya Yoga The term Kriya Yoga used by Patanjali should not be associated with the bogus systems of Kriya Yoga popularly being foisted upon gullible Yoga enthusiasts. Some of those practices are only body actions or Kriyās from the Hatha Yoga system, Prāna Kriyās or breath modifications or some distortion of the Laya Yoga Kriyās or Kundalini Kriyās. It is to be assumed that no authentic Yoga teacher or Yoga Master would be teaching authentic Kriyā Yoga except to students who are "Adhikārins", or the "highest candidates of Yoga." That bogus Kriyā Yoga is being presented to Bhogis and Rogis throughout the world is an observable fact. Yet, the real Kriyā Yoga does exist, and is enunciated in the teachings of Maharishi Patanjali in his exciting *Yoga Sūtras*.

Ashtānga Yoga

The Eight Fold Path of Patanjali actually only commences at the 28th Verse of the Second Sādhana Pāda, where Patanjali states "Through adherence to the Eight Limbs of Yoga and with continued destruction of a—Yogic impurity, there comes about a radiance associated with discrimination and discernment " Patanjali then enunciates the Eight Limbs in Verse 29 by simply stating "Yama-Niyama-Āsana-Prāṇāyāma-Pratyāhāra-Dhāraṇā-Dhyāna-Samādhi are the eight limbs '.

Yama is moral restraint and has five aspects Niyama is ethical observance also having five aspects. Āsana deals with body posture. Prāṇāyāma is breath control. Pratyāhāra is sense withdrawal and sense containment. Dhārana is Yogic concentration. Dhyāna is Yogic meditation and Samādhi, an ecstatic state of Cosmic Consciousness. Patanjali describes the first five as Bahiranga Yoga or the outer aspects of moral, ethical, physical and sensory adjustment Each of these have several levels and should not be taken at face value, but a deep Viveka or understanding of each of the concepts should be developed. The higher three aspects of Dhāraṇā, Dhyāna and Samādhi are termed Antaranga or inner psychological and metaphysical

levels of Yoga. I think that it would be valid to say that Patanjali's Ashtānga Yoga is a spiritual Yoga rather than a religious Yoga Self-realisation would have to be understood at the metaphysical or spiritual level as it actually transcends any religious meaning It is here that Patanjali reminds us that we have a Cosmic existence in an orderly Cosmic universe.

Patanjali also clearly states that the Antaranga (inner) steps are an individual Ādhyātmika aspect of the Yoga and that these three can merge one into another consecutively So fast may they develop that the consecutive upward experience seems as though it is spontaneously happening at once Patanjali calls it "Samyama Yoga." Obviously this Yoga is only for those who have completed the Bahiranga or outer aspects of the Yoga, where the body and emotions are purged clean and pure, the lower levels of consciousness calmed by the Abhyāsa of Yoga and a transformation into the higher states of consciousness at hand. One writer has termed the Samyama Yoga—"The Path of Internalization of Yoga."

There is much argument between researchers and translators of Patanjali's *Yoga Sūtras* as to interpolations or insertions into the original text. A number of researchers consider the Antaranga Yoga Commentary a later interpolation Some hold that the whole Eight Fold Yoga section from Verse 28 onwards in the Second Chapter to be an interpolation. Yet, many like myself hold this to be the most valuable part of Patanjali's *Yoga Sūtra*, I object to only the term "Īśvara" used in Verse 32. It is an obvious interpolation because Patanjali at no time dealt with Yoga as a religious subject.

Verses 30 and 32 are the main foundation of the Ashtānga system, yet these two verses are the most controversial amongst modern Yoga practitioners and in fact, are thrown out with impunity by the largest number of modern Yoga adherents as being irrelevant to the practice of Yoga. Verse 31, 33 to 45 support the principles of Yama and Niyama, the moral restraints and ethical observances of Ashtānga Yoga. These five restraints are : Ahimsā, non-injury; Satya, truthfulness; Asteya, non-stealing; Brahmacharya, sexual control; Aparigraha, control of greed. The five ethical observances are Saucha, purity of body and mind; Santosha, serenity; Tapas, disciplined austerity; Svādhyāya, self-introspection, and Ātman Prasādam,

accepting what one's Karma returns to one in life. The last observance is usually given as Isvara Pranidhāṇa, or devotion to God. Please note my earlier comment that this is an obvious interpolation into the text of Patanjali. The author demands moral restraints and ethical observances of a self-disciplined nature. Should we not assume that this discipline also involves the acceptance of one's Karma through the Law of Action and Reaction ? There is no need to "cop out" in belief in God. This author has no quarrel with those who believe in God, but it is not a prerequisite of Ashtānga Yoga. It certainly is necessary in Bhakti Yoga.

In Verse 31 Patanjali states emphatically that the five moral restraints and the five ethical observances are valid in all phases of Yoga practice, anywhere Yoga is practised, irrespective of one's state at birth, through time or by circumstances. He openly states that these ten points are the Mahat Vratam, the Great Yogic Vows. Without these ten restraints and observances, the practice of Yoga will be fruitless. Patanjali goes on to say in effect that we are born little more than animals, but by Yama—moral restraint—we purify ourselves to the human level, when we recognize our "humaneness," which Patanjali described as "being grounded in virtue". We are now ready for the next stage of evolution, which is a transformation through evolution of our human state to the divine state. Literally, when observing the Pancha Niyama, the five ethical practices, we are divinizing our lives, spiritualizing our human being into a divine Being. Patanjali states that when grounded in morality and ethics, self-mastery develops and Riddhi or psychic prosperity literally surrounds the Yogic practitioner. The Yogi is filled with health, well being, and spiritual fullness. In Chapter Three Patanjali discusses the Siddhis that appear in "the field of the Yogin" who is well established in Yama-Niyama.

Yet, with all of the explanation of Yamas—Niyamas the modern practitioner of Yoga and even many modern teachers of Yoga do not adhere to or teach the moral restraints and ethical observances as outlined by Patanjali. It is here that many candidates approaching Yoga part company with their prospective teacher who insists upon "morality and ethics" as a consideration at least for the practice of Yoga. Here in Ānanda Āshram, every year at the part of the course where we

deal with this section of Yoga teachings, we have the maximum resistence put up by the most number of people. Indeed, I have had to part company with many prospective students of Yoga on this point alone. I really feel that a candidate seeking Yoga must be presented with the foundation principle of Yoga and encouraged to live a moral and ethical spiritual life. I insist that Patanjali's Ashtānga Yoga is "a no—option Yoga". Simply performing Āsanas and Prāṇāyāma without the higher aspects of Yoga is fruitless. Those who claim that only the higher aspects of Yoga are necessary are making a mockery out of Maharishi Patanjali's teaching that Yoga is Integral Yoga. It is true that Haṭha Yoga without Rāja Yoga is no Yoga. It is equally true that Rāja Yoga without Hatha Yoga is no Yoga.

In Chapter Three entitled "Vibhūti Pāda." Patanjali deals with the supernormal powers, Vibhutis or Siddhis, associated with the spiritual life of all Eastern countries. One must be very careful in the study of these supernormal powers or the desire for these Siddhis which can be a distraction from the real purpose of Yoga. Patanjali states that Siddhis are co-incidental with the practice of higher Yoga and particularly he mentions those states of Antaranga Yoga which begin from Dhāraṇa or Yogic concentration Patanjali mentions some Ashta Siddhis or Eight Special Attainments that come as a parallel of Yogic development. It is not the purpose of this article to go into these Siddhis as such, but to state that Patanjali warns that these Siddhis should be left alone for the attainment of the higher Kaivalya or Moksha, spiritual freedom that the practice of Yoga promises to the Yogin. Patanjali definitely states that pursuing Siddhis will take one off the spiritual path and only ego aggrandizement will be the result. Patanjali says that Yogin who resists the occupation of Siddhis becomes pure, has self mastery, has an indestructible body filled with beauty and grace, is robust in appearance and is astute of mind. He knows the difference between Self and non self, and has no attachment to pride, worldly knowledge, or position. He has attained to Self Realisation. This high body-mind state is obviously one of a higher development or evolution than that attained through the earlier Kriya Yoga alone.

In Chapter Four, the "Kaivalya Pāda," we find a definition of what one author has called "Transformed Consciousness". I

often tell my students that Yoga is "Conscious Evolution". So 'Transmuted Consciousness' is the process towards Yogic integrity as suggested by Patanjali.In the very first verse Patanjali says that evolutionary states are as the result of birth; paranormal attainments may be as the result of Pujas, Mantras, or even drug taking, but he does say that Samādhi or Ecstatic Cosmic Consciousness comes only through Tapas, Yogic discipline and austerities that form an integral part of Ashtānga Yoga practices. Transformation is the process by which the practitioner of Yoga becomes the real Yogin. Sadly today we do not differentiate between the Yogin or Yogi who has attained, and the person who is simply doing some Asanas or other Yoga practices. Patanjali's description in Chapter One and Four of the path to the goal and the goal itself represent the outer folds of his Yoga. Packed in between is the real Yoga Abhyāsa, the Ashtānga Yoga.

It is to be hoped that more Yoga seekers and those who have chosen to be self appointed teachers of Yoga take up a study of Patanjali's *Yoga Sūtra* as a method of increasing their own awareness of the real meaning and practice of Yoga. I am shocked when I discover how many senior practitioners of Yoga and teachers of Yoga have little or no knowledge of Patanjali's most excellent work. It may also be stated that it is very difficult to find good translations of the *Yoga Sūtra*. I find it very difficult to recommend any single work, but would rather suggest to my readers to follow up an in depth study of a number of writers in the field. I would single out from the list below three most excellent works : *Rāja Yoga*, (1930) by Swāmi Vivekānanda; *The Textbook of Yoga Psychology*, Dr. Rammūrthi Mishra, (1972) and *The Yoga Sūtra of Patanjali* by Georg Feuerstein (1979).

Chapter 9

The Combined Therapy Program

RUDOLPH BALLENTINE, M.D.

What we are trying to do in our Combined Therapy Program at the Himalayan Institute is to increase self awareness on many different levels. This is the basis of the holistic treatment that we offer. There are three phases to the program. One is to create self awareness in terms of the body—how it works and what you are doing with it at any given moment. That includes not only the external body—muscles, posture, diet and exercise—it also includes learning to tune into what is going on in the internal body—the digestive tract and the different internal organs. The second phase of our program is to increase awareness of one's breathing habits. Because of our orientation and our origin, we put a great deal of emphasis here, for we are attempting to integrate Eastern and Western ideas of therapy and holism, and in the East there is a great emphasis on breathing. This has never been stressed in the West. The third phase of our program stresses the mind—how it works and how it affects the entire system. So ours is a live-in program in which we work with a number of modalities in a combination that we call Combined Therapy ; it is our model for working with a person holistically.

The setting is the Pennsylvania countryside where one can get in touch with himself more easily than in the city. People come for a two-week stint of reorientation to health, and they may stay longer if they wish. We do evaluations in terms of the usual physical parameters, of course. We do thorough physical examinations including a number of laboratory tests designed to characterize one's functioning This includes both the treadmill stress test and breathing tests. In addition, we spend a lot of time talking with those who come to the program—just sitting

and trying to find out what they are learning about themselves, for our emphasis is training.

I don't really think one can have a holistic health program in which people are solely patients, for when someone is only a patient, he is not being managed holistically. He must also be a trainee. He needs to learn to be responsible for his own health, and that means he often needs the opportunity to discuss what he is learning or to get some advice on other things he should be learning. So physicians and staff members spend a half hour each day with the patient, just discussing what he has been through, what he is learning, what he is experiencing.

I must say, these sessions are the high point of the day for the physician who is so fortunate as to be able to serve in this capacity. He learns as much as the trainees do. As they increase their self awareness and tune into the body and learn more about how it is functioning, and how this body function plays into their emotions and their thoughts, they share that with the physician, and he thus has the rare opportunity to get a really in-depth view of quite a number of people. So those who come here and work in this program learn an incredible amount.

Exercise plays a very important role in our Combined Therapy Program, too. Everybody gets outside. We do a lot of jogging and other kinds of exercise. This includes whatever we can do with the lake—swimming or skating—depending on the time of year. Aerobic exercises are important in a holistic program, but we feel that this is not the limit of what one should have access to, so we teach the hatha yoga postures as well This is extremely important for loosening up, increasing flexibility ; many people do it before jogging, feeling that it prepares the body for aerobic exercise. We also use the postures as an exercise in creating increased self awareness, for through the use of hatha yoga one can tune into his body and learn more about how it functions and become more aware of its different parts.

This is important ; one cannot learn, or relearn, to use his body, learn to use it in a way that won't make him sick, unless he learns to tune into it and become more aware of it. Most people are indifferent to what they are doing with their bodies at any given moment. For instance, they usually have no idea of what their posture is. They don't pay attention to it. They just sort of slump. We have bucket seats and basket chairs, and we

just sort of flop into a basket somewhere. But paying attention to the body is a very important aspect of learning, for only when we are aware of what we are doing can we train ourselves to use the body differently.

Another way we help people to become more aware of what is going on inside is biofeedback. This is a very successful technique for learning to tune in because the biofeedback machine will make it perfectly clear if you are not relaxed. No matter how good your intentions are, or how much you smile, the machine will not respond unless you go inside of yourself and figure out a new way of relaxing and a new way of being It forces people to get in touch with themselves ; it won't allow you to fake it. So we put our trainees in a room with the biofeedback machine and let them work with it.

Not only do we use conventional biofeedback in our Combined Therapy Program, we also use videofeedback. We have discovered that if you really want to know what you do with your body, then watch. But don't just watch what you are used to watching ; let the television camera watch you, and then you can see what you are doing as an objective observer sees.

We also give classes, didactic sessions, on many subjects. We give courses on anatomy, for instance, because most people don't know what is inside of them. We think it is important for them to learn where the organs are so that they can get in touch with what they are doing There is also a lot of instruction on breathing because this has a great deal to do with the way the body functions. And of course we make instruction on nutrition available because we want people to understand the theory as well as the practice. We want them to understand all about the physiology of nutrition (what you can do to improve absorption of the foods) Then we take them to the kitchen and let them learn how to cook if that's something that interests them.

Now what role does diet play in all this ? From a holistic point of view, there is a very close relationship between emotions, mind, body and nutrition. If you go about trying to figure out what to eat in a mechanical way, if you think that you can prescribe diet by doing blood tests, then you have missed the boat. There is a circular relationship between diet and psychology that cannot be broken—nor can it be worked with unless

one becomes aware of what is going on.

We don't prescribe diets. I don't believe in prescribing diets because I don't think that the same diet is right for everyone ; each person has to find what is suitable for himself. The important thing in nutrition is to learn how to judge what you need at a given time, to learn how to pick and choose and to be open and flexible and able to change, for as you change as a human being—and hopefully you will—then your dietary needs and preferences will also change So diet is dynamic and very changing, and a good diet and sound nutritional practices can only be based on increased self awareness We do think, however, that there is a proper way to eat—and we teach this to our patients—and we have also found that as a person eats more wisely, he needs to eat less

By the same token, as one learns to breathe properly, he doesn't have to work at it so hard. So in the Combined Therapy Program we test breathing patterns with a rhinomenometer. This is a way of tapping into the breathing cycle and getting a visual tracing of what it looks like. You can actually see where the jerks, irregularities and pauses are in your respiratory cycle, and this helps you tune into what you are doing with your breathing that might be harmful. Then you can work with it as you do your breathing practices throughout the day.

Nowhere in the country, except in the Combined Therapy Program, do I find *anyone putting an emphasis on breathing* as a learning experience. We literally teach people new ways of breathing, saying, "Work with this pattern of breath" or, "This aspect of your breathing habit might be causing you problems. Work with that and see what it does to you. Experiment with changing your breathing habits." We work with this kind of training quite intensively, for we have found that there is a correlation between the way one breathes and the way one feels. When you are feeling upset, for instance, you can change your breathing, and regulate it, and feel better. Breathing techniques are very practical in dealing with both physiological and emotional problems.

From a holistic point of view, we feel that physiological and emotional problems are very much intertwined. Therefore, our training in self awareness includes not only training in awareness of the body and the breathing, but also training in

learning to be aware of how the mind functions. This is often relegated strictly to the realm of psychotherapeutic work, but in the Combined Therapy Program we ask people to learn to observe themselves, not to depend on someone saying, "You must be feeling so and so" or, "Now say everything that comes into your mind, and I will help you understand what is going on inside you." We try to get people to deal with their problems on their own as much as possible

This ability is cultivated through concentration and meditation, through learning to quiet the mind so that buried impressions can come to the surface and be observed. Most people, however, have difficulty in concentrating, for their minds have acquired the habit of jumping and wandering So training the mind to be steady is extremely important A steady mind has repercussions throughout the whole system—it will affect one's breathing habits ; it will influence physiology ; it will change the way one functions totally.

We tell those who come to our program to pay attention to their breathing as the first step in helping them learn to concentrate their mind. Breathing is a very good thing to focus on. It is going on constantly, it reminds you to watch it ; it not only helps you calm your mind down and focus on one thing, but at the same time it has another advantage. If you are focusing on breathing, you are also learning how to regulate the breath, and if the breathing is regulated, that begins to make the mind function in a more steady way. So one effort feeds the other. You can take advantage of that cyclic interaction and get one to support the other.

Our forte, then, is to put a number of therapies together into something that we call Combined Therapy. Here, you can get training in how to do exercise and how to regulate your diet In addition, you learn how to relax and how to quiet your mind. Moreover, you learn how to begin to explore more evolved and mature levels of awareness and you learn how to use this expanded consciousness to coordinate body, breath and mind so that they function synergistically. Thus your life becomes more creative, dynamic and rewarding. This, in the final analysis, is the ultimate criterion of health.

Chapter 10

Therapeutic Value of Yoga

S.N SHEVDE

Yoga is a way of life and it has message for human body, mind and the soul. Right from the times of great Yogi Patanjali, the people have tried to interpret and practice yoga Many of them have from older times adopted yoga as a life style which in its exaggerated form was misunderstood by western society as giving up a major part of family/social life, follow Brahmacharya, of take Sanyāsa and go to Himalayas for meditation for ultimate goal of Samādhi or Siddhi. Others have tried to make use of yoga in their daily life for physical well being, mental peace or alertness and spiritual purpose etc.

Yogic therapy is atleast as old as the sage Patanjali who is supposed to have lived in the 1st century before Christ. However, unfortunately the scientific approach to yoga as a therapy and the research in that direction did not gather momentum though there are scattered references in Ayurveda literature till in the recent past when the western societies threatened by their industrialisation and material affluence got attracted towards aspects of Eastern cultures including yoga.

As a result, Yogic therapy is gaining more and more popularity every day in every country in some form or the other. Many medical practitioners who were initially inclined to discard yogic therapy and its usefulness have come to recognise its merits after gaining experience. Specialists in psychosomatic medicine and psychiatry especially, both in this country and abroad, have started showing a good deal of interest in this therapy as it is felt by them that yoga helps to eliminate the psycho-physical tensions which they find associated with their patients even after their recovery from mental and nervous

disorders. Many members of the medical profession have by now come to value the contribution that yoga can offer in the field of physiotherapy and rehabilitation of patients suffering from chronic and other disorders.

Many a people seem to have a narrow perspective of yoga and the yogic therapy. They try to understand and practice yoga only to the extent of physical exercises i.e. āsanas for the purpose of physical well-being or to get rid of their obesity or to cure diseases or physical ailments after they have tried Ayurveda or allopathy or some other system of medicine But this concept has to be changed. One must understand that practising yoga has many-fold advantages viz.

(1) Physical well-being
(2) Mental happiness, peace and alertness
(3) Intellectual advancement and spiritual upliftment.

Yogic therapy has preventive as well as curative value. If yoga is practised properly and regularly under expert advice and supervision, it can help tremendously to remain away from several diseases and unfitness more particularly in the present unavoidable age of stresses and strains.

As it has been proved from time to time yoga has its own curative value in case of most of the functional diseases such as cold, constipation, and so on. A very important point should be noted here. Even when a patient is cured by allopathic medicine, in many instances though he is recovered temporarily, he is still weak, mentally and physically. Yoga helps to reduce these after effects of medical ailment and brings back the original energy. Yoga is harmless and has no side effects.

However this does not mean that yogic therapy can replace modern medicine. In fact it is complementary to the field of medicine. For example, a patient approaches the doctor and narrates his health problems. The doctor considers his case in all aspects i.e. he tries to find out medical history of his family and forefathers to find out whether there is any hereditary observance. He takes certain tests to check his blood, urine etc. in order to diagnose the cause and nature of his disease. At this point yoga can help the patient. Along with a prescription of appropriate medicine and its dosage, the doctor

also advises the patient to practise yoga for speedy recovery, to maintain metabolic balance of the body It is the proper combination of medical and yogic practices that has cured millions of patients. Hence it should be appreciated that the therapeutic value of yoga in practical life is immense and cannot be overestimated.

An example is Ujay which is an exercise of deep breathing, in and out. It is the general impression that during deep breathing more oxygen is taken in and absorbed But this is not really cent percent true. Actually more oxygen is taken in only when there is more exertion, i.e. during exertion, more carbon dioxide is exhaled and more oxygen inhaled A question may be asked as to how Ujay helps in such a case when it is really not a muscular exertion The answer is that Ujay helps the respiratory system. Due to deep breathing exercise done in Ujay one's lungs and chest boxes expand, the heart muscles are toned up, the absorption power or capacity of the lungs is increased, thus improving the respiratory system.

It should be properly understood that yogic therapy does not consist of mere lavages and exercise treatment but lays great stress on control of diet, social attitudes and personal habits so as to bring about beneficial changes in the whole of the metabolic system.

Yogic therapy is a science in itself which, though it has been practised from ancient times, needs lot of experimentation and research It is a good sign that some institutes in India as well as abroad are trying to experimentally verify the applications of Yogic therapy with proper coordination with modern science and medicine. It is also reported that a considerable success has been achieved in several diseases such as constipation, dyspepsia, piles, nerve exhaustion, general debilities, insomnia, chronic bronchitis, asthama amongst others

The space in this article would not permit elaboration of success achieved in these cases or Yogic therapeutical procedures and associated yogic principles of diet. However one should do well if he understands and follows certain do's and don'ts as far as yoga and yogic therapy is concerned viz.

(1) Try to understand the basic principles, approach and utility of yoga and yogic therapy.

(2) Follow certain norms and principles in social behaviour and psychological attitude
(3) Practise yoga under proper guidance. The approach type and extent of exercises will vary from person to person, his health and physique and circumstances
(4) Follow a strict and controlled diet and sleeping habits.
(5) Refrain from smoking and avoid drinking alcohol as far as possible.
(6) Try and train oneself to cultivate an impersonal but not antisocial outlook on life so as to avoid irritations and frictions in one's interpersonal relationships.

As stated earlier time and space do not permit more elaboration on therepeutical value of Yoga But what has been presented so far should perhaps be sufficient to show that yoga and the yogic therapy certainly have an important role to play in modern-psycho physical medicine and day to day life.

Chapter 11

Stress: A New Perspective

PHIL NUERNBERGER, PH.D.

Stress is now recognized as a major causal factor, not only in disease, but also in behavioral and social dysfunctions. Along with this recognition, however, is an increased confusion concerning the nature of "stress". The theories on stress are incomplete and often incompatible with each other, each focusing on only one aspect of stress, without maintaining an overall perspective. These theories fail to provide a logical and consistent framework of human functioning from which human dysfunctioning, such as stress, can be logically and successfully explained and understood.

The predominant and most useful model of stress is found in the General Adaptation Syndrome (GAS) theory of Selye, based upon his well-known research on physiological response systems (1, 2). Selye first defines "Stress" as "the non-specific response of the body to any demand made upon it". A central mediating factor is the intensity of the demand and the consequent physiological response (stress) to the intensity. Selye then refers to the positive use of this response as "Eustress," and this is discussed with a unique approach in terms of arousal. When the body's response has negative consequences, i.e., leading to a disruptive or pathological condition, it is referred to as "Distress". Thus, according to Selye, "Stress" is an unavoidable condition, referring to the body's physiological response to any demand.

More particularly, the General Adaptation Syndrome (GAS) conceptualizes the stress response to exist in three stages. The first, the Alarm stage, is the activation of the arousal response as the individual reacts to a perceived threat. This

entails the so-called "fight or flight" response and is predominantly seen as the arousal response which prepares the body for action It is regulated by the sympathetic nervous system which is part of the autonomic nervous system. The second stage is called Adaptation, the body's compensatory response to the fight or flight response. It is, in general, the body's attempt to return to homeostasis.

If the Alarm reaction is continually being activated, due to unresolved or continuous threat, the body's resources are depleted, and this brings on the third stage of the GAS, Fatigue. This stage can evolve into a dangerous depletion of bodily resources, resulting in breakdown, disease, and even death to the organism Thus, we have the negative physiological response, called "Distress," defined as sustained, nearly exclusive, sympathetic dominance which literally wears out, or "burns out" the organism, allowing for the development of disease or pathology.

Quite similar to Selye's position is the psychophysiological theory that "Stress" (or Selye's "Distress") is that which stimulates the physiological systems causing the physical symptoms of stress disorders Both Selye's and the psychophysiological theory depend primarily on the impact of sustained or intense arousal to define stress

There are several major limitations to the GAS framework which have led to a number of logical problems, and which prevent us from achieving a more sophisticated understanding of stress First of all, the GAS is based primarily on sympathetic arousal and does not deal adequately with the less dramatic, but equally powerful, role and influence of parasympathetic functioning This is also true of the psychophysiological theory of stress. The GAS stages of Alarm and Fatigue are described almost exclusively in terms of arousal, overutilization and depletion of bodily resources. This equation of stress with arousal (sympathetic dominance) ignores the deleterious effects of extreme parasympathetic dominance. Consequently, neither theory can account for such stress conditions as depression, passivity or withdrawal. For example, depression may not lead to a depletion of bodily resources, but rather to a failure to utilize these resources. This is an entirely different kind of dysfunction in which the end result could be, and often is, as fatal as the end result of fatigue.

The equation of stress with arousal, or with the general response of the body to any demand made upon it has led to such logical absurdities as "good stress" and "bad stress", and is the source of much confusion. For example, we often hear that a certain amount of stress is not only useful, but necessary for maintaining motivation and performance. On the other hand, we know that stress can be very harmful, leading to such conditions as coronary vascular disease. Simply adding new terms, such as Eustress and Distress, only adds to the confusion and does little to clarify the issue

Secondly, the GAS model, based solely on physiological response patterning, ignores the determinant role of mental functioning. The autonomic and other physiological responses studied by Selye are regulated primarily by limbic functioning The limbic system is subject to control and influence by the higher cortical processes, i.e., the thinking process. In short, as Roger Sperry succinctly states, mental events control physical events (3). The GAS treats autonomic processes as if they really were autonomous, which was the assumption at the time Selye formulated his theory.

Two theories, the psychodynamic and cognitive theories, do focus on mental activity as the determining source of stress. However, as Brown points out, they fail to define and explicate the intervening variables between the mental event and the physiological response (4).

A third limitation inherent in the GAS model and other theories of stress, is a dependency upon a mechanistic application of homeostasis. Homeostasis was a central concept in Walter B Cannon's germane work on stress, and it still retains the flavor of a constancy mechanism. Homeostasis, as generally used, is a concept which applies to a closed system, such as a machine. Current theories on stress generally treat human functioning as if it were mechanistic i.e , a closed system. Cannon's definition of homeostasis as "the coordinated physiological processes which maintain most of the steady states in the organism" is an accurate description of a closed system, but fails to take into account the "dynamic equilibrium" characteristic of human functioning. The principles of open systems (5), such as *equifinality* (the reaching of a goal through a variety of initial conditions and ways), *harmonization* (an integrated

balancing) of energy and processes, and the ability to perform (obtain) work in states of complete harmonization, or dynamic equilibrium, all more accurately describe human functioning. Current conceptualizations of stress either treat the individual (or the physiological response) as a passive recipient of demands or influences from the environment (internal or external), or fail to explicate the dynamic principles involved in the mind/body interaction Furthermore, an open systems approach must be holistic, involving all aspects of human functioning, and on all planes. Current models of stress are much too narrowly based, leading to conflict and confusion in terms and concepts, thus limiting their usefulness and power as explanatory frameworks

Stress A New Perspective

The following framework has its basis in the comprehensive analysis of human functioning found in yoga science. Quite widely misunderstood in the Western world, yoga is a highly experimental and empirical science which demands the utmost discrimination and verification Its discerning analysis and understanding of human functioning underly the seemingly remarkable controls over mental and physical events, and the superordinary abilities demonstrated by yoga masters (6). It is within this comprehensive framework that stress—human dysfunctioning—can be more completely understood.

A Brief Overview

The full theoretical framework of stress will be developed over a series of articles. This framework will, of course, be a simplification of an extremely complex process, and will illustrate principles which govern human functioning and can clarify the complex interactive processes of consciousness, mind and matter (body), and their interaction with the environment.

Briefly, the model is as follows : we are concerned with three interpenetrating levels, called *koshas*, or sheaths, in yoga science—the physical sheath, the energy sheath and the mental sheath. The first and most obvious sheath or plane is the physical body, including those physiological response systems regulated primarily by the autonomic nervous system (ANS)

The ANS and the response systems are influenced by many things, such as glandular function, physical activity, and diet. The autonomic system, however, is itself regulated (controlled) by the central nervous system, and in particular, the limbic system. The limbic system is also influenced by a variety of events, including autonomic and sensorymotor functioning, but it in turn is regulated primarily by cerebral functioning.

The second level of functioning is the substructure of energy which underlies the physical structures and processes, and is called the *prānic* sheath in yoga science. While the nervous system provides a physical structure by which energy

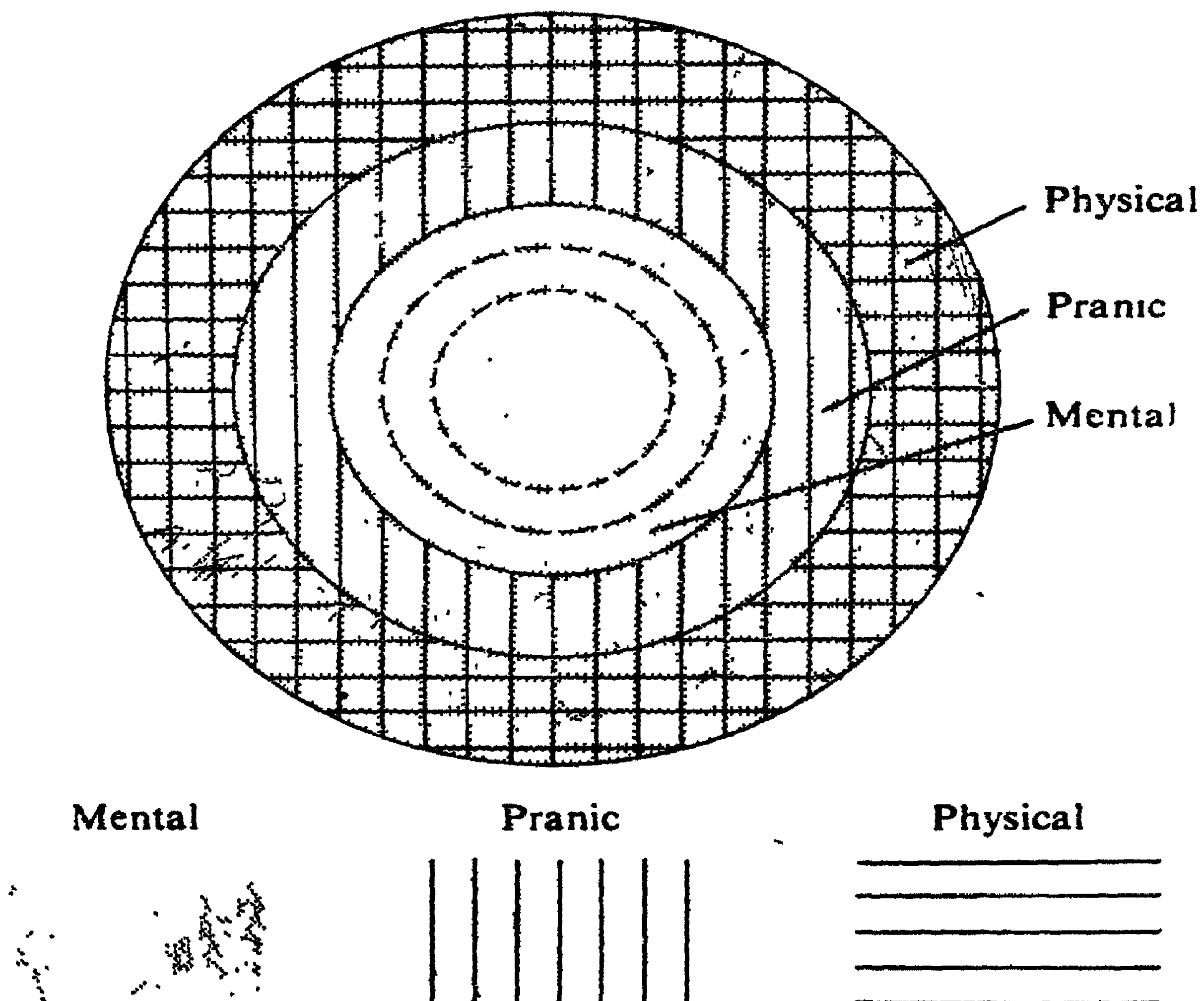


Figure 1—Three interpenetrating levels of functioning or presenting in yoga science.

Note: The two dotted concentric circles represent two further sheaths which will be discussed in a later article. They are called the intuitive sheath and the blissful sheath in yoga science.

is transmitted, there do appear to be much more subtle energy patterns. While Western sciences have little knowledge of the energy dynamics underlying physiological functioning, these energy fields, their function and regulation have been the object of intense study in yoga science. Called *prāṇa* (literally the "first unit of energy"), this energy substructure is seen as the link between mind and body and functions within predictable and lawful parameters The major vehicle of *prana* is the breath, which, as we shall see later, plays a significant role in the regulation of both autonomic and central nervous system functioning.

The third level is that of mental functioning, and is referred to as the mental sheath.* It is on this level that sensory input is organized and given meaning, mentation occurs, and memory and emotions have their play. The mind is understood as a distinct and separate reality with extension into time and space and is not to be confused with mere neurological activity (3, 4). Through the direction and regulation of energy, whether on the subtle plane or on the gross physical plane, the mind regulates and perfectly controls all physiological processes (3, 4, 7).

At all times, there is reciprocal influence occurring between levels and within levels. The process functions as an interpenetrating hierarchical structure which has its most apparent parameters in the physical sheath and becomes increasingly more subtle as one moves towards mind. For example, on the physical plane regulatory control is hierarchically structured so that each level controls that which is lower, and in turn, influences the level(s) superior to it. We see that the autonomic system is regulated by the limbic system, which in turn is regulated by the higher cortical processes. Yet, within any one level, each particular system has some capacity for self-regulation.

Between systems, the more subtle level is the controlling agent. For example, the *pranic* sheath sustains the physical sheath, and the mental sheath sustains the *pranic* sheath This can best be understood as interpenetration. Figure 1 illustrates

*For our purposes here, we are defining only one level as the mental sheath In later development, two more levels will be defined which are more subtle aspects of human functioning.

this principle. The three sheaths are pictured as concentric rings —the outer ring is the physical sheath, the second ring is the *pranic* sheath, and the third, innermost ring, is the mental sheath. As the illustration shows, the mental sheath permeates both the *pranic* and the physical sheath or level This interpenetration allows for both absolute control and communication between the sheaths This illustration also points out the role of energy as the defining interactional agent between mind and body.

One further principle is the necessity of harmonization of physical, mental, and energy processes in a dynamic balance to allow the human to function optimally without creating some dysfunctional effect. Disharmonization implies dysfunction. Harmonization occurs in a variety of ways and utilizes a variety of systems or conditions and is best defined by the principle of equifinality (5). The causal mental agents in this harmonization are habit formation, awareness and will (the capacity to consciously direct energy to achieve a certain end).

This brief overview will be developed more completely below and in subsequent articles. First, we will examine the physiological responses and activities which are the physical bases of the stress response and then build our model up through to the higher planes of consciousness

Autonomic Imbalance . The Physiological Parameters of Stress

Since it is the autonomic system that regulates our internal environment, it is this system which determines the physiological parameters of the stress response. It is called autonomic because it can function without conscious direction or awareness. However, that does not mean that it operates independently of CNS functioning and mental activity.

The autonomic system is comprised of two anatomically distinct nervous systems. The sympathetic system mediates the inner physiological mechanisms of arousal and is associated with outward activity involving muscular exertion and large expenditures of energy. Its emergency function is life-protective, and it has the capacity to function on a moment's notice, emitting a sudden, large, and coordinated discharge through its extensive interconnections of all the nerve fibers in the ganglia along the spinal column.

The parasympathetic system regulates the housekeeping work of the body—the inward activities of nourishment and excretion, repairing tissues and building up energy and fuel supplies for the next period of outward action—and is organized along a more sitespecific basis without the overall instantaneous capacity of the sympathetic system

The organs and organ systems are innervated by both sympathetic and parasympathetic systems, referred to as reciprocal innervation While anatomically distinct, the two systems are continuously engaged in a balancing act which indicates a very high level of mutual influence and communication At the autonomic level, this probably occurs as a result of the reciprocal innervation but, more importantly, occurs in the nerve plexuses. These plexuses are groupings of nerve fibers from each system and are found along the vertical axis of the body, from the base of the spine to the head and in front of the vertebral column. While the nerves from the two systems do not interconnect, there may be a high degree of mutual influence and interaction which takes place through the magnetic fields that they create This would seem to be an extremely important part of the energy and communication system that occurs on subtle levels throughout the body.

In healthy functioning, these two systems work to harmonize physiological activity to meet the demands made upon the body. Understanding this natural capacity for harmonization, or dynamic balance, is necessary for a comprehensive and functional understanding of stress.

Typically, stress is understood as arousal. It is well-established that sustained or intense sympathetic dominance is very stressful and can lead to exhaustion, pathology and even death. By the same token, sustained or intense parasympathetic dominance also appears to lead to pathology, and possibly, to death. For example, certain illnesses are directly associated with abnormal parasympathetic activity, such as asthma and duodenal ulcers. Both involve changes associated with increased vagus nerve activity, which is the major parasympathetic nerve.

There are, then, these two possible autonomic responses to discomfort or perceived threat in the environment: while increased arousal is one response, adequately described as the

"fight or flight" response and the three stages of the GAS, another possible response by the body to discomfort is increased parasympathetic dominance, either as an organ-specific manifestation, or as a generalized response resulting in such phenomena as depression.

The Possum Response

If we recognize that there can be a pathological overdominance of parasympathetic activity, then we must reformulate our concept of stress. There are significant number of individuals who respond to threat with passive withdrawal, or what may be called the possum response. That is, instead of preparing to fight or run away when faced with a threatening situation, they just sort of roll over and play dead. Their response to fear is not arousal, but inhibition. This is marked by the typical characteristics of extreme parasympathetic discharge—decreased physiological functioning, loss of skeletal tone, mental lassitude, inactivity, and eventual depression.

The possum response may be originally rooted in the failure of autonomic arousal to adequately cope with what was perceived as environmental threats or demands, and it may have developed as a counterattempt to control them. For example, there is Seligman's work with learned helplessness and the consequent pathology and even death which resulted from the learning (8). It may also be a learned response developed from the socialization process in which social dominance/submission issues were important determinants. More likely, the possum response is a complex syndrome involving not only constitutional predisposition and organ-specific weaknesses, but also subtle psychological and learning factors. In any event, it is evident that a significant number of people react to a threat by what can only be explained by parasympathetic dominance

Similar to the GAS framework for arousal, there appear to be stages to this dominance: first, the alarm stage, characterized not by fight or flight, but by the possum response; secondly, a period of adaptation where increased activity (arousal) is needed to balance the inhibition. The third stage is best called "systems failure," characterized not by a depletion of resources, as we find in the fatigue stage of the GAS, but rather by a loss

of capacity to function This is a failure to utilize resources, or a failure to generate resources, such as is characterized by the work of LeShan on the failure of immunity systems in those who have suffered loss of a loved one (9). The end result is pathology and death.

A Question of Balance

This gives us a more comprehensive, and more functionally useful definition of the physiological response parameters of stress · *a state of internal imbalance, characterized by unrelieved dominance of either arousal or inhibition. This imbalance might lead to impaired (damaged, or diminished) physiological and/or mental functioning.* Prolonged stress is a consistent pattern of imbalance (stress) resulting from the habitual dominance of sympathetic (fight or flight) activity or parasympathetic (possum response) activity. This occurs in either particular specific organ sites or as a generalized response pattern.

In other words, stress occurs when we are out of balance. This is illustrated in Figure 2 If we use the letter A (for autonomic) as a balance point, it becomes easy to understand the principle involved.

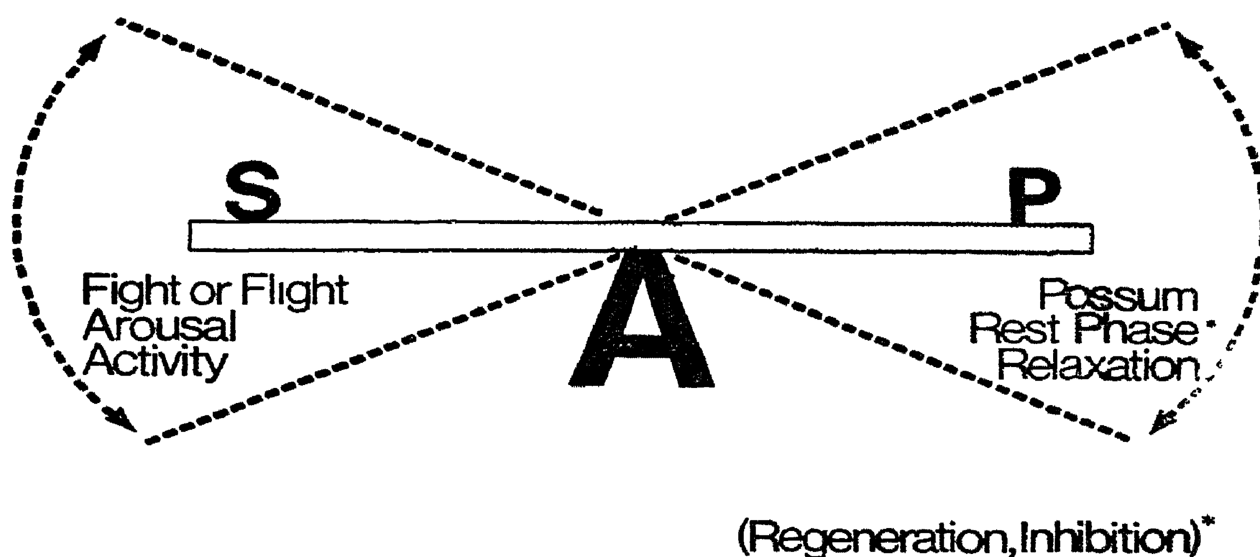


Figure 2 from Nurenberger, *Freedom from Stress*, copyright 1981 by the Himalayan International Institute of Yoga Science and Philosophy. Reprinted with permission

Healthy, non-stressful functioning is represented by a balance between the two sides. This balance is really a harmonization of function and energy. This can be a dynamic balance which is constantly shifting from the dominance of one system to the other, as required, to satisfy the demands made upon the body As long as this shifting remains fluid or dynamic, there is no stress. Consequently, we can have periods of arousal (or patterns of activity) which are healthy and nonstressful as long as they are balanced by periods of relaxation and rest. In the same vein, a state of relaxation (parasympathetic dominance), if it is not balanced by activity, can also become dysfunctional, resulting in lethargy and depression.

Balance may also take the form of complete harmonization or dynamic equilibrium between the two systems. At this point, a balanced dynamic state is maintained in which there is no stress, although a great deal of physical and mental activity can be accomplished during this period. An example is the resting heart beat, which is in perfect neurological balance and still accomplishing its job. A more complex example of this harmonization is a meditative state of mind where the mind is very alert, but the body is very relaxed.

If we understand stress to be a state of autonomic imbalance, then we can eliminate the confusion between "good" stress and "bad" stress (which is really a confusion created by equating arousal and stress). The fact that we have either arousal or inhibition does not, in and of itself, mean that we have stress. *The key element in defining the physiological parameters of stress might be whether or not there exists a balance, either dynamically or as total harmonization, between sympathetic and parasympathetic activity. Autonomic imbalance may be stress.*

Keep in mind that Figure 2 oversimplifies an extremely complex system. Stress, or imbalance, can occur in many different ways, but whatever the particular pattern, if we have prolonged or intense parasympathetic imbalance, then we may develop the disease associated with that imbalance, such as asthma or depression. If we have prolonged or intense sympathetic imbalance, we may develop the diseases associated with the imbalance, such as hypertension.

There are probably specific optimum balance points or even a generalized one for organs and for systems involving

many organs. Also, our organs and systems are interconnected: if an imbalance occurs within one organ, it will affect the entire system, as well as other systems with which the initial system interacts. Conversely, if the overall autonomic response is balanced, individual subsystems will begin to achieve balance.

Once we understand the principle of balance, or rather, harmonization, the problem now becomes one of understanding those events, processes and mechanisms which lead to balance. Surprisingly, there appear to be very definite ways by which one can consciously learn to moderate and control autonomic functioning, and begin to control stress. In several articles to come, the next levels of control will be discussed, beginning with the central importance of the breathing process as it relates directly to the autonomic functioning Following the discussion of the importance of breathing, the role of the central nervous system and the mind will be explored, as well as their functions in the stress response. We will then examine the use of emotions and mentation in creating stress and will eventually present an analysis of the subtle energy flows which underlie the other systems and which are directed by the mind

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Chapter 12

Meditation : A Study in Relation to Mental Stress

K.S. JOSHI

Meditation is an age old technique of Yoga which is supposed to bring about deep relaxation of the body and mind. This helps a great deal to relieve tensions and establish harmony in one's life. Meditation is a means to overcome stress and the disorders caused by it. In the present day world of competition and fast life this passifying and integrative role of meditation needs to be stressed more.

Materials and Method

In the present study meditation was taught to twenty persons for over a period of one month. All of them had a very busy schedule of work every day involving a lot of strain. The occupation-wise break-up of the participants was as follows :

Lawyers	3
Medical practitioners	5
Business executives	4
Housewives doing service	3
Post-graduate students	5

The age of the participants ranged from 19 to 58.

One common complaint of all the participants was insufficient rest and strain of work. They were taught meditation of the Hamsajapa type, in which one was asked to sit erect in a relaxed posture, close the eyes, breathe slowly and smoothly without holding the breath, watch the flow of air while inhaling

and exhaling, and be aware of the "SOHAM" mantra without uttering the words. One was asked to be aware of the sound "SO" while inhaling, and the sound "HAM" while exhaling. Instructions were given to relax the body, especially the wall of the abdomen, neck, facial muscles, forehead, and eyes. An important part of the instructions was about how to stop uttering words by keeping the apparatus of speech motionless, and how to stop seeing images by keeping the eyes still. One was asked to be aware only of the two symbols "SO" and "HAM" while breathing very smoothly in and out. The practice of Hamsajapa was continued for twenty minutes both in the morning and evening for one month. Readings were taken in the beginning of the experiment before the first meditation session and at the end after the last session. As indicators of the state of mental stress the following parameters were included in the study.

1. Respiratory rate per minute
2. Pulse rate
3. Blood pressure
4. Galvanic skin resistance
5. EEG of the occipito-parietal region.

Results and discussion

Findings of the experiment are recorded in the following table. (Figures are averages of 20 readings.)

Parameter	*Reading before the experiment*	*Reading after the experiment*
Respirations per minute	15.8	8.3
Pulse rate per minute	75.6	66.2
Blood pressure (systolic)	135.7	114.5
Blood pressure (diastolic)	85.8	81.6
GSR (millivolts)	8.4	26.5
EEG (cycles per second)	12	6
EEG (amplitude-millivolts)	42.4	28.8

The data were statistically analysed by J. Sandler's 'A test' based on a simplification of Student's 't'. (British Jr. of Psychol. 1953 (46). p. 225-226). In case of all the parameters studied the values of "A" show that the difference between the means in readings 'before' and 'after' is highly significant

Conclusion

Meditation of the Hamsajapa type provides a very effective means of overcoming stress in every day life which has become so common with most of us.

Chapter 13

Emotional & Mental Stress—Regulation through Yoga

R.C. GUPTA

Modern Age Problem of Stress & Strain and Yoga

Modern age, no doubt, is significant for fragmentation of human personality at several levels. As a result man is faced with tremendous rise of inner and outer forces, making him perplexed, anxious, agitated, angry, worried due to non-fulfillment of his desires and expectations. Naturally, this results in mental and emotional imbalances and immaturity, causing disharmony in his life and making him susceptible to various psycho-somatic, mental and nervous ailments of functional and chronic type

Many Psychologists and Medico-scientists now realize that yogic science deals with human personality as a whole viz. body, mind and soul together. It has therefore, great potentiality of developing them and integrating the split personality—the root cause of all mental and emotional imbalances, pains and miseries. Thus Yoga is capable of eradicating stresscreated mental and emotional disorders by stilling the turbulent mind, and by harnessing the physical, mental, emotional and spiritual energies.

Accordingly, we need to examine how for Yoga tends to bring about mental maturity and emotional stability, eradicating the significant causes of mental and emotional ill-health. What are its main causes and what are the general Yoga-therapeutic principles and processes normally used or recommended in regulating such mental and emotional disorders? I shall attempt to deal with these and other allied matters in some detail now under appropriate headings.

Significant Therapeutic Yogic Concepts

The efficacy of Yoga in dealing with stress and strain may be outlined as below :

(a) Right mental attitude towards life and harmonious interpersonal relationship should be developed through the practice of the first two steps of yoga, namely, Yama and Niyama i.e , moral conduct and self-discipline. These two significant steps of Pātanjali Yoga have greatly contributed to the rectification of mental and emotional imbalances in the lives of many students, patients and trainees of Yoga-cum-therapeutic camps conducted by me from 1973 onwards. This gave them sufficient strength to counteract the stress reactions like tension-headaches, gastro-intestinal ulcers, high blood-pressure, cardiac accidents, allergies and many types of mental disorders which are attributed to the failure of their stress mechanism. It is widely known that excessive worry, mental fatigue due to weak nervous system, and mental tension due to frustration and other causes mentioned supra, if continued for a long time result in nervous break-down and seriously affect the flow of life-energy.

(b) Perfect physical and mental health, both being inter-related and inter-dependent, primarily depend on the triple equilibrium—the mental, the vital and the physical, not only individually but in their mutual working as well.

(c) Our concept of good health should not merely be confined to the absence of disease, but refer to the healthy condition of both body and mind when all human organs and systems work in perfect harmony and control, when there are no conflicts—inner or environmental, and when there is integerated development of all physical, mental, moral and spiritual powers and faculties in man.

(d) Truly speaking, normal human personality is largely dependent on the perfect equanimity of the mind. This can only be attained through the yogic

techniques of prānāyama, concentration and meditation, all of which lead to the steadying of mind intellect. Relaxation techniques like Shavāsana, Makarāsana, and meditative poses like Padmāsana, Siddhāsana, Swastikāsana, Bajrāsana etc go far in silencing the body, breath, and mind, and in removing mental tension, stress and strain on the nervous system. In the long run they help remove the tension-created ailments already mentioned and many other psycho-somatic ailments like acute or chronic insomnia, nervousness, emotional disturbances like fear, anger etc., heart strain, dysmenorrhea, stammering, psychosthenia, peptic ulcer (due to nervous tendencies), organic and functional heart disorders requiring rest, anxiety states, phobias, and also helpful in pre-operative and post-operative conditions.

(e) Meditation helps by enabling a person to realize his true Self (Ātman) without which he can not be free from his addiction to sense experiences, and his base desires, anxieties, fears, hopes etc., and their evil consequences namely sufferings, pain, emotional tension, stress and strain. Further, man can obtain equanimity of mind and mental maturity if he performs all his actions in a detached manner only for duty's sake, and not for any personal gain or reward

(f) Bad emotions like fear and anger undoubtedly affect man's health adversely due to the secretion of poisonous toxins (corticord fluids from the adrenal gland) in body fluids, thus affecting the chemical and biological functioning of the body organs and systems. Control of bad emotions is, therefore, very desirable, of course, not by suppression (which as psychologists know, causes considerable harm), but by contemplation on their opposites viz. courage in the case of fear, peace of mind in case of anger, love in case of hate. This is in accordance with Maharshi Patanjali's aphorism 'Vitarka badhne pratipaksh bhavanam'.

(g) Bulk of our common ailments are psycho-somatic and functional. They are primarily caused by our wrong ways of living and thinking, and the consequent loss of

rythm in our life and in the functioning of our various body organs. Disease comes only when our mind and ego are enfeebled, except in cases where it is due the external agents, virus infection etc

(h) For sound mental and emotional health, one should cultivate sound mental attitudes towards sex life, work, dependents, family members, fellow workers etc and tone up behavioural patterns of life through love, compassion, feelings of mutual well-being and similar other virtuous acts. This will ensure inner and outer harmony through proper understanding and adjustment.

(i) As already stated, human complex consists of body ; mind and soul, all inter-dependent and reacting upon each others. So self-culture involving sublimation of all activities, desires etc., is man's paramount need and ensure steady growth and expansion of all his faculties.

Stress-Meaning, Causes & Effects

Stress, according to Dr. Hanseelye, is the "non-specific response of the body to any demand upon it". Although it refers to biologic stress, but it does apply to mental stress also, as body and mind, being inter-related, interact upon each other. So stress can both be biologic and mental. Stress is virtually a subjective experience as our psyche instinctively reacts to a subtle emanation of anxiety, fear, anger, discords, hatred and other similar bad emotions.

Stress is generally caused by

(a) Over-straining of nerves, senses (both cognitive and conative) and body organs ;

(b) Threat or obstacle to our basic needs e.g. hunger, thirst, love and affection, social status, rest, sex etc ;

(c) Sudden unpleasant news such as loss in business, reprimendation, war or any calamity ;

(d) Inter-personal irritations, lack of self-control and personality integration, poor physical and mental health ;

(e) Occupational demands such as distasteful work or jobs creating severe demands in terms of responsibility, time and performance ;

(f) Poverty lack of family adjustment or harmony, unemployment etc. ;

(g) Rising incidence of conflicts due to racial, caste or religious prejudices with underlying feeling of superiority hatred, resentment etc , and

(h) Other numerous problems arising out of population and knowledge explosion, rapid social change, out-moded methods of education, custom, beliefs, generation gap etc , and technological advancements without corresponding rise in the values of life, thus making man intellectually and technically giant but emotionally pigmy, creating a vast gulf between the thinking and feeling processes of man's personality.

In situations of considerable stress, our adrenal glands produce three groups of hormones called 'Corticoids', as a defensive measure, but if such secretions are insufficient, excessive or defective, they cause 'diseases of adaptation' such as gastro-intestinal ulcer, high blood pressure, cardiac accidents etc. These diseases are caused more by deranged adaptive reactions of our body than by the direct damaging effects of disease producing agents. The harmonal secretions are defective only when our nervous and glandular systems are weak, rendering the stress mechanism in motion, and it can thus cause such disease in pre-disposed persons. It generally affects the already weak part or body organ, just as the weakest link of a chain breaks under some pressure or tension. This, therefore, emphasizes the need for developing right mental attitude towards life and for circumstances under which man may be placed.

Significant Yogic Healing Methods

Like many other systems of therapy, in yoga-cum-psycho therapy, healers employ different techniques and processes, according to their knowledge and experience. Bulk of the diseases are psycho-somatic. They are effectively controlled by controlling the mind through relaxation and meditative processes. For want of time and space it is not possible to give fuller details of those techniques, but I would prefer to tell a few more effective healing methods. Briefly they are :

(a) Allow the patient to open out his mind freely and frankly so that the psychic cause embedded in his mind could be easily ascertained. Analyse his past and current case history in the light thereof. Thoroughly examine his thought trends and behavioural pattern in one or more sittings. Infuse self-confidence and unflinching faith in the supreme power—the source of all energy, knowledge, love and bliss. Tell him the real cause of his mental or emotional disorder and also that he has the inherent power to rectify the same himself without any external aid or medicine, but only by changing his mental attitude towards them and by developing strong conviction about his ability to cure these diseases himself.

(b) Remove disillusionment, if any, through right knowledge about the reality ; eradicate nervous debility and negative mental attitudes by constructive, creative and positive thoughts, clear thinking etc .

(c) Develop patient's vital health through correction in dietic habits, practice of effective Yoga postures, prānāyāma, mudrās and bandhas under proper guidance, and above all concentration and meditation according to one's needs and physical strength on systematic and scientific basis.

(d) Mental control through the practice of five self-restraints (Yama) and five processes of self-purification (Niyamas) suggested by Maharshi Patanjali.

(e) Remove distraction of the mind by cultivating the mental attitude of friendliness towards the happy persons ; compassion for the unhappy ones ; delight in the virtuous people ; and indifference towards the wicked persons.

(f) Practice of scientific relaxation, as already stated, is the most effective remedy of curing psycho-somatic and mental disorders. Enormous quantity of life current (Prāna) is released when the mind and the body are completely relaxed in Shavāsana (Mritāsan) when mind is fixed constantly on the soul, after freeing it from all distracting thoughts, and complete voluntary withdrawal of consciousness and life energy (Prāna) from

the entire body and fixing them at the concerned nervous centre or the diseased and/or enfeebled body part or organ required to be toned up

(g) All extremes should be avoided in various activities of the daily life, and they should be made conscious and rhythmic, as best as possible , to raise the vital strength and the functional efficiency of all body organs and glands, thus warding off all physical ailments and mental imbalance.

Concluding Remarks

Before I close, I would like to stress once again the importance of attuning our body to life and health through positive and clear thinking, and to have our heart free from unhealthy emotions and mental tensions. Our mind should always be charged with constant awareness of God, the supreme power and the source of all vitality, true knowledge and bliss. Perfect physical and mental health can be ensured by harmonious coordination of spirit, mind and body. Radiation of spirit must be pressed out through the individual mind into bodily expression. Mind working through consciousness is the creative force of all physical health and strength. The vitality, in turn, reacts to reinforce mental energy, both body and mind thus interacting upon each other.

Surely if any one wants to be completely free from inharmonious states of the body and mind and from their functional disorders, anxiety states, phobias etc., nothing will be more effective than the practice of integral Yoga which combine Bhakti, Jnāna, Karma and Rāja yoga.

SECTION III

YOGA AND PHYSIOLOGY

Chapter 14

Effect of Shavasan on Stress

BRIG. DR. K.K. DATEY

Introduction

This study was undertaken to determine whether the effects of stress can be modified by shavāsana training and relaxation

Material and Methods

Twenty stable hypertensive patients on conventional antihypertensive drug therapy were selected for this study. They were divided into two groups of 10 each. One group was given Shavāsana training (T), and the other formed the control group (C) Table I.

TABLE I

Blood pressure in the two groups

	Ave Age	*Ave. Orig. S & D.*	*Ave Init S & D.*	*Mean Orig*	*Mean Init.*	*Ave Dur.*
T 10	56	170/107	158/103	127	119	7·1 Yrs
C 10	57	168/106	160/10	128	120	6 0 Yrs

The average age was 56 years. The average duration of hypertension was 7.1 years. All these patients were on anti-hypertensive drugs. The average pre drug-treatment blood pressure was 170/107 mm. Hg. with a mean blood pressure

(diastolic pressure + ⅓rd pulse pressure) of 128 mm Hg With drug therapy, the average blood pressure came down to 158/103 (mean 121 mm Hg). At this stage the treated patients were given shavāsana training in addition to the drug therapy and the control group continued their drug treatment.

All patients in both groups were given the cold pressor test and the Master's two step exercise test. Blood pressure was recorded before and after the test Recovery time was noted.

Cold Pressor Test

This was done according to the method of Hines and Brown.[6] After recording the blood pressure, the patient was asked to immerse one hand into ice-cold water (4°C) for 30 seconds, after which blood pressure was recorded again. The blood pressure reading was repeated every ½ minute till it came back to the initial level.

Master's Two-Step Test

Master's two-step test consists of a predetermined number of trips over a set of 9" high steps. The test is adjusted to the sex, age and weight of the patient. All our patients were given the single Master's two-step test for a minute and a half. The blood pressure was recorded before and after the test, and every half minute thereafter, till the B.P. returned to the initial level.

Shavasan Training

Shavasan training was given as discussed earlier.

After eight weeks' training the cold pressor test and the

Blood Pressure

	Previous Treatment		*Post treatment*		
	Ave	*Mean*	*Ave.*	*Mean*	*Drugs reduced*
T	158/103	119	140/96	111	33%
C	160/102	120	158/100	118	Nil

TABLE III

Shavasan in Hypertension Cold Pressor Test

		Systolic B P.		*Diastolic B P*	
		Max Rise	*Rec Time*	*Max. Rise*	*Rec. Time*
T (S)	Pre	21 5	15 2	7 5	10 6
10	Post	13 1	8 0	2.5	4 6
	Diff	8 4	7 2	5 0	6 0
	P	∠ 025	∠ 025	∠ 05	∠ 025
C	Pre	22.1	14.7	6 9	7.5
10	Post	23 4	13.9	6.4	9 6
	Diff.	—1.3	—0.8	0.5	—2.1
	P.	N.S.	N.S.	N.S.	N.S.

Master's two step exercise test were repeated, in both treatment and control groups.

Subjective improvement was noted in most patients during the course of treatment. The patients reported that they felt better, slept better, and there was improvement in their other symptoms like headache, dizziness, fatigue and chest pain

TABLE IV

Shavasan in Hypertension

Exercise Test

		Systolic B P.		*Diastolic B P.*	
		Max Rise	*Rec. Time*	*Max. Rise*	*Rec. Time*
T 10	Pre	25.8	16 7	8.2	12.8
	Post	17.7	7.9	5 5	6
	Diff	8 1	8 8	2 7	6 8
	P	.025	025	N S.	025
C 10	Pre	28 6	15 6	6.7	6 8
	Post	27.7	15 2	7.4	8 8
	Diff	0.9	0.7	—0.7	—2.0
	P	N.S.	N S.	N S.	N S.

There was a significant reduction in blood pressure in the treated group. In addition, the drug requirement was reduced by 33%. The results in both groups are shown in Table 1.

Cold Pressor Test

The results of the cold pressor test in both the control and the treated groups before and after treatment are shown in Table III.

As shown in Table III, the rise in both systolic and diastolic pressures was reduced after shavasan training. The recovery time was also reduced. Changes in the control groups were not significant.

Exercise test

The results of the exercise test in both the control and treatment groups before and after treatment are shown in Table IV. The results are similar to those in the cold pressor test.

Discussion

Stress plays an important part in the pathogenesis of hypertension The resting haemodynamic changes in essential hypertension are similar to those occuring in a normotensive person during emotional stress [4] These changes can also be produced by direct electrical stimulation of motor centres and regions of the hypothalamus[3]. It appears that repeated hypothalamic stimulation by emotional stimuli leads to sustained high blood pressure.

Since stress is a part of life it cannot be completely avoided. Hence it is important to change one's reaction to stress. The effects of stress can be modified by relaxation techniques like yoga, Shavasan training, transcendental meditation, autogenic training, zen, etc Datey et al[5] demonstrated that shavasan, a yogic exercise which produces complete physical and mental relaxation, significantly lowers blood pressures in hypertensive patients. Patel and Datey[7] have shown a significant reduction in the blood pressure of patients treated with shavasan train-

ing. They also showed reduction of blood pressure and symptomatic improvement after shavasan training

Normally, sensory perception of outside events leads to a hypothalamic and a pituitary response, and this is reflected in a physiological manifestation by sweating, tachycardia, palpitation, high blood pressure, etc With Shavāsana training these changes are perceived from moment to moment and the person is able to effect changes in the emotional and mental responses to inside events. This results in the modification of hypothalamic and pituitary responses, thus bringing them again towards the homeostatic level. This helps to modify the response to stress.

Summary

The effect of shavasan on stress in the management of hypertension was studied in two groups of hypertensives. One groups was given shavasan training while the other served as the control.

Subjective improvement was noted in most patients in the shavasan group and during the course of training. After shavasan training, the average mean B.P. of the treated group came down from 119 mm Hg. to 111 mm. Hg and the drug requirement was reduced by 33%. In the control group, the average mean blood pressure was reduced from 120 to 118 mm. Hg and there was no change in the drug requirement.

With the cold pressor test, before treatment, the average rise of systolic B.P. was 21.5 mm. Hg with a recovery time of 15.2 minutes. The average diastolic rise was 7.5 mm. Hg with a recovery time of 10.6 minutes. After shavasan training, the average rise of systolic B.P. was 13.1 mm Hg. with a recovery time of 8 minutes. The average diastolic rise was 2.5 mm. Hg. with recovery time of 4.6 minutes. No significant changes were noted in the control group.

Similar differences were observed between the two groups with Master's two step exercise test.

It is concluded that shavāsana training not only reduces the B P. but also modifies the response to stress.

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Chapter 15

Comparison of Two Yoga Techniques—Uddiyana Bandha and Uddiyanaka with Muellers and Valsalva Manoeuvres on the basis of Breathing Patterns and Intragastric Pressure Changes

DR. M.V. BHOLE

Introduction

In an earlier study, three varieties of Uddiyāna viz. Uddiyāna, Uddiyāna Bandha and Uddiyāna Mudrā were differentiated from each other on the basis of breathing patterns and intra-gastric pressure changes.[1]

While working on the present problem, the author realised that Haṭha-pradīpika and Gheranda Samhtā[2] are referring to Uddīyāna Bandha as "Uddīyanaka" *in relation to* Prānāyāma which literally mean Uddiyāna Bandha of less intensity. After due discussions with scholars it has been decided to introduce the term Uddīyanaka in place of Uddīyāna Bandha and the term Uddīyāna Bandha will be used to designate Uddīyana of the earlier work for clarity and scientific purpose.

It is a common observation of the author that almost 80% of people attending yoga classes perform Muellers manoeuvre instead of Uddīyāna bandha and about 40% tend to practice Valsalva instead of Uddīyanaka, at least in the beginning of the training programme because of strong conditioning. If not corrected, they continue to do so with the consequence that they fail to get the desired effects of Uddīyanaka and Uddīyāna

Bandha[2,4,7,8], even after practising them for a long time while many persons are seen to complain of undesirable reactions because of their wrong practices.

Most of the yoga teachers are unaware of Muellers and Valsalva manoeuvres as these techniques are described in selected medical literature[4] and even medical profession seem to overlook them in their preoccupation with drugs and diseases.

In the present communication, an attempt has been made to explain the details of these four techniques in terms of breathing patterns and intragastric pressure changes. Uddīyāna bandha and Muellers manoeuvre forms one pair and Uddīyāna and Valsalva forms another having similarities and differences amongst all of them. The work is expected to be important and useful for educationists and scientific workers in search of standardised yoga techniques for study and understanding while it may arouse interest amongst yoga teachers, students and scholars.

Material and Methods

The studies were conducted on twelve male students of Yoga College well versed in various yoga techniques requiring manipulations of breathing apparatus like Uddīyana Bandha, Agnisāra, Nauli, Kapālbhāti, Gajakarani and Prānāyāma as a part of their training programme. The following additional training was given to them so that they could have an experience and understanding of the following :

(1) Different phases of breathing (viz. inspiration, expiration), retension and suspension of breath at the end of deep inspiration or expiration or in-between.

(2) The role of chest wall, diaphragm and abdominal muscles in normal and deep breathing and in various yoga techniques cited above.

(3) To develop an ability to use them in co-ordination with each other or differentially at will.

(4) To appreciate one's own feelings during various breathing manocuvres arising from the chest wall, abdomen diaphragm and internal structures i.e. proprioceptive and visceroceptive awareness.

Aids to Training : Placing one's own hands over abdomen and thorax as monitors for bio-feed-back was found useful in making most of the students understand various details of the additional training except very few who required other helps like looking into a mirror and observing the practice of other students.

Experimental Work : Breathing movements from the level of the nipples and umbilious were picked up with the help of pneumographs attached to Marry's Tambours and were recorded on a smoked paper using students kymograph. A rubber tube with a balloon tied to one end was passed in the stomach and the outer end of the tube was connected to a self-recording mercury manometer attached to the kymograph. This recorded intra-gastric pressure changes during normal breathing and various conditions under study. The same technique was also used to educate students finding difficulty to learn and grasp the details of the extra training given to them and also to educate all the students to appreciate the differences between Uddīyāna bandha and Muellers manoeuvre and Uddīyanaka and Valsalva.

The experiments were performed in morning on empty stomach and after evacuation of bowels and bladder while training was given in the evening before dinner. Any suitable and comfortable posture like Padmāsana, Swastikāsana, Vajrāsana was used by the student but it was kept the same by the same student for all the conditions under study.

Conditions Studied

Breathing pattern and intra-gastric pressure changes were recorded in the following conditions:

(1) Natural unrestricted breathing in a resting condition.
(2) With lungs in end inspiratory condition.
(*A*) *Relaxed condition* of the abdominal and thoracic muscles and the diaphragm. As far as possible no voluntary activity of inspiration or expiration was to be experienced by the subject in this condition
(*B*) *Uddīyanaka* consisting of progressive contraction of the abdominal muscles, keeping diaphragm and chest

Average Values with S.E.M. and S D. for Stomach Pressure in Various Conditions and Different Inter-Condition Comparisons

Basic Observations			*Diffeı ent Inter-conditions comporisons*		
Conditıons studıed	*Mean ± SEM*	*S.D.*	*Comparison made*	*M D ± SEM*	*t-value and Significant*
I. Lungs ın end Inspiratory condıtion					
A. Relaxed conditıon	8 8 ± 0 98	5.6	I.B. with I A.	7 3 ± 1 34	5 46 HS
B. Uddiyanaka	16 1 ± 0 91	5.6	I.C wlth I.A.	14 4 ± 2 3	6.25 HS
C. Valsalva	23 2 ± 2.08	10.4	I C with I.B.	7 0 ± 2 3	3 06 HS
II. Lungs in end			II.B wıth II A	16 6 ± 1 5	11.46 HS
Expiratory			II C with II A	15 2 ± 1.83	8.01 HS
condıtıon			II C wıth II B	31 8 ± 2 33	13-6 HS
A. Relaxed condıtıon	—0-3 ± 0 09	0 5	I.B with II B	33 0 ± 1.7	19 29 HS
B. Uddiyana Bandha	—16.9 + 1.45	8 1	I B wıth II C	1 2 ± 2 04	0 58 HS
C. Muellers	14 9 ± 1 83	9 2			

muscles in a relatively relaxed condition

(*C*) *Valsalva Manoeuvre* consisting of sudden contraction of chest and abdominal muscles leading to a strong and sustained expiratory effort with closed glottis.

(3) With lungs in end expiratory condition.

(*A*) *Relaxed condition* as in 2 A above

(*B*) *Uddīyana Bandha* consisting of a slowly progressing effort at inspiration with the help of chest muscles ; keeping diaphragm and abdominal muscles in a relaxed condition. A suction is felt below the umbilicus in successful attempt of Uddiyana Bandha.

(C) *Muellers Manoeuvre* consisting of strong and sustained effort at inspiration with the help of the abdominal muscles and the diaphragm, chest being kept out of action. A suction is felt in the neck region in a successful attempt.

The subjects took sufficient rest in between the two conditions and the time allowed for rest was their feeling of a state of relative normality.

Results and Observations

Breathing patterns, sequence of events at the level of nipples (chest) and umbilicus (abdomen) as details of the technical procedures and behaviour of stomach pressure during various conditions studied is schematically presented in figs. 1 and 2. The comparison of stomach pressures is given in the text table.

Discussions

From the results and observations it is seen that in spite of some similarities, Uddīyanaka and Valsalva manoeuvre are different from each other as far as their techniques and effects are concerned. The same is the case with Uddīyana Bandha and Muellers manoeuvre, and also with Uddīyanaka and Uddīyāna Bandha. These could be briefly summarised below.

I. Uddīyanaka and Valsalva Manoeuvre

A. Similarities :

(1) Lungs are in the end-inspiratory condition.
(2) There is an attempt at expiration with closed airways.
(3) The intra-gastric pressure increases.

B. Differences :

(1) Air-ways are blocked by closing the nose by fingers in Uddiyanaka while in Valsalva the glottis is kept closed
(2) There is a progressive contraction of the abdominal muscles in Uddiyanaka while they remain in a state of isometric contraction in Valsalva.
(3) Diaphragm tries to relax and ascend upwards in Uddīyanaka while it can get pressed down or up in Valsalva.
(4) The chest has a tendency to expand in a passive manner due to relaxation of muscles in Uddīyanaka while it remains in a state of isometric contraction in Valsalva.
(5) The increase in intra-gastric pressure is much higher in Valsalva than in Uddīyanaka.
(6) One feels tension in abdominal and thoracic cavities in Valsalva while a feeling that some impulses are travelling upwards is developed in Uddīyanaka which can become very pleasant and tranquillising if performed in the right way. This is the effect of Uddīyana of all kinds as described in Yoga texts.[7], [8], [4],
(7) One tries to feel the sequence of events taking place within the body in Uddīyanaka while one tries to have an increasing effort at expiration which can go to a level of exertion in Valsalva. This, in other words, mean that one is more engrossed in motor activity in Valsalva while sensory activity is more important in Uddīyanaka.

II. Uddīyanaka Bandha and Mueller's Manoeuvre

A. Similarities :

(1) Lungs are in the end-expiratory condition.
(2) There is an attempt of inspiration with closed airways.

B. Differences :

(1) Air-ways are blocked by closing the nose by the fingers in Uddīyana Bandha while glottis is kept closed in Muellers.

(2) The attempt of inspiration is performed with the help of chest wall in Uddīyana Bandha while the same is achieved by a strong contraction of diaphragm in Muellers.

(3) The abdominal muscles and diaphragm remain well relaxed in Uddīyana Bandha while they remain in a state of isometric contraction in Muellers.

(4) The intra-gastric pressure becomes negative in Uddīyana Bandha while is become positive in Muellers.

(5) One feels suction in neck region in Muellers while it is felt in the pelvic region and lower abdomen in Uddīyana Bandha.

(6) One experiences some sort of exertion in Muellers while a pleasant feeling that something is rising up within the body[4] having tranquillising effect is generally experienced in properly performed Uddīyana Bandha.

(7) Motor oriented activity is present in Mueller while sensory oriented activity is present in Uddīyana Bandha.

III. Uddīyana Bandha and Uddīyanaka

A. Similarities :

(1) Air-ways are blocked by closing the nose with fingers.

(2) A background of relaxed body musculature is maintained throughout as much as possible for better performance and results.

(3) One tries to become more and more sensitive to internal happenings i e. both the practices are sensory oriented and in both there is a feeling that something rise up in the body.

(4) Diaphragm remains inactive and ascend upwards.

B Differences :

(1) Uddīyanaka is practised with lungs in end-inspiratory condition while Uddīyana Bandha is practised with

lungs in end-expiratory condition.

(2) There is contraction of abdominal muscles in an effort of expiration in Uddīyanaka while these remain relaxed and get sucked inwards during Uddīyana Bandha.

(3) Intra-gastric pressure becomes positive in Uddīyanaka while it becomes negative in Uddīyana Bandha.

Conclusions

The present study indicates that Valsalva and Mueller Manoeuvres as described in medical literature are different from the two important yoga techniques Uddīyanaka and Uddīyana Bandha respectively in the light of their basic techniques, breathing patterns, intra-gastric pressure changes, internal feelings and claims given in yoga texts. Knowledge and understanding of Valsalva and Mueller Manoeuvres by yoga teachers and students on one side and Uddīyana Bandha and Uddīyanaka by medical profession on the other side is expected to be of mutual benefit.

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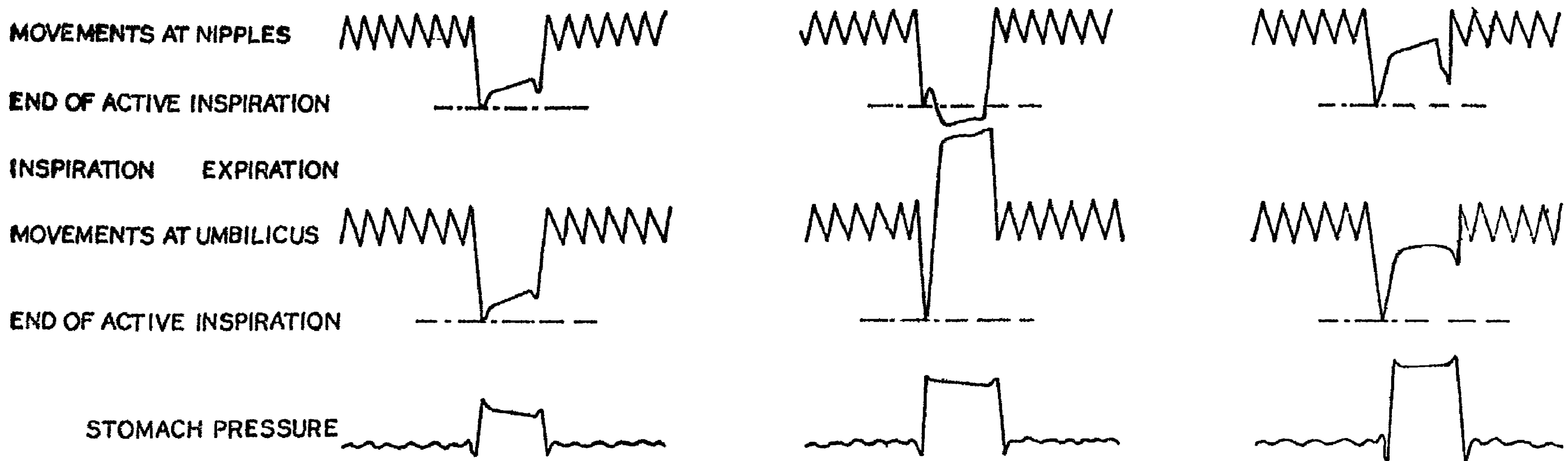
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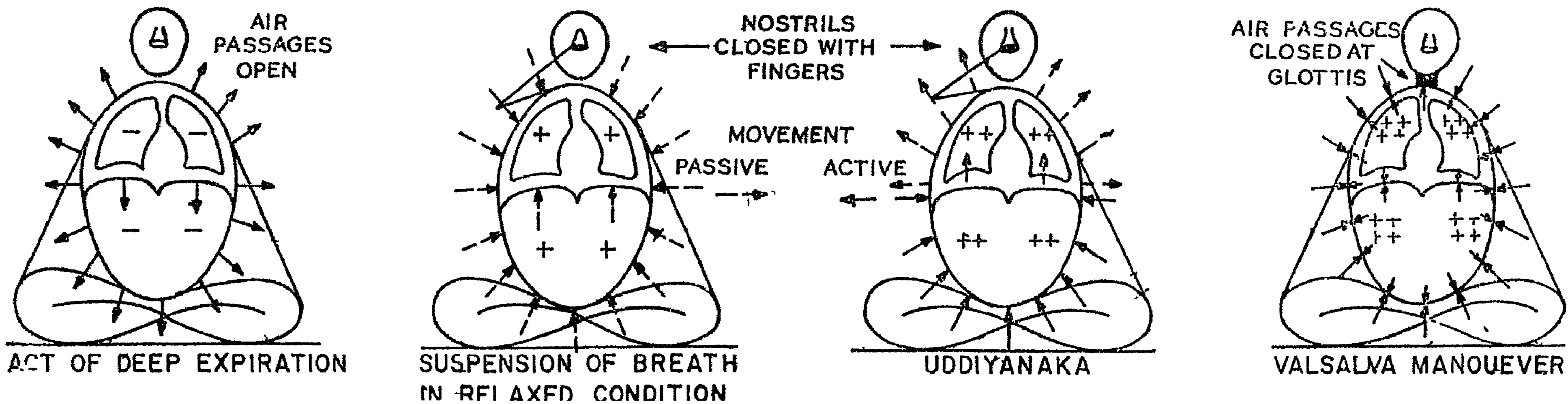
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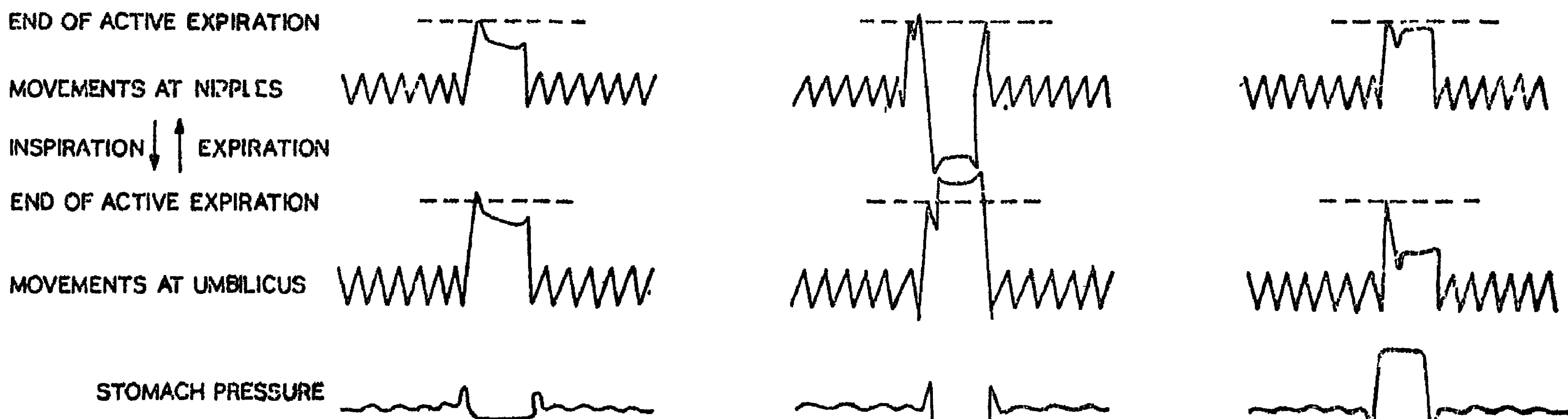
BREATHING PATTERNS, INTRAGASTRIC PRESSURE CHANGES AND SEQUENCE OF EVENTS AT CHEST, ABDOMEN AND DIAPHRAGM DURING UDDIYANAKA AND VALSALVA MANOUEVER



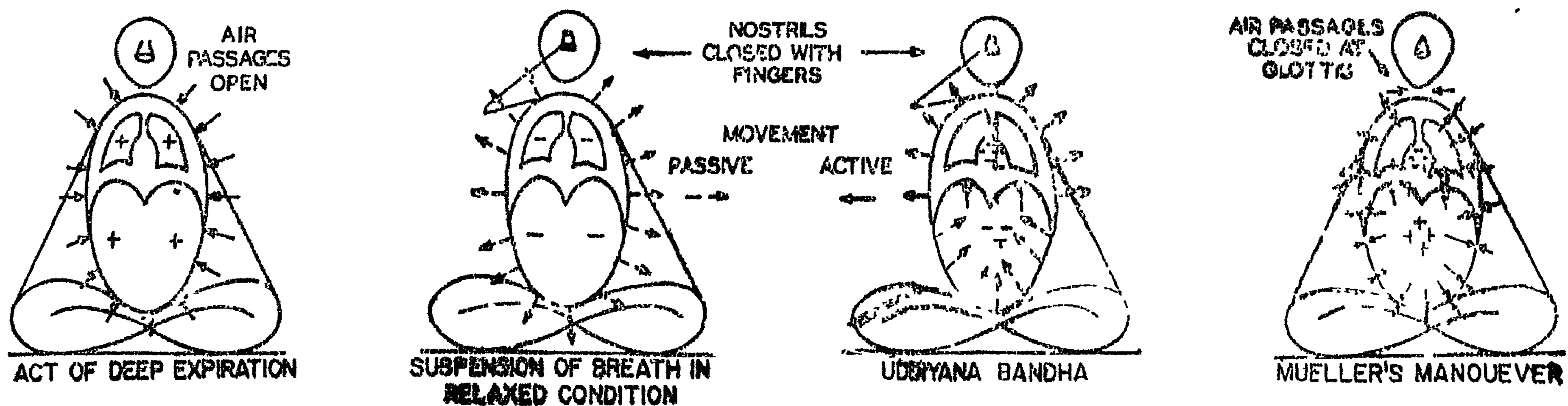
NATURE OF MUSCULAR ACTIVITY DURING VARIOUS CONDITIONS



BREATHING PATTERNS, INTRAGASTRIC PRESSURE CHANGES AND EQUENCE OF EVENTS AT CHEST, ABDOMEN AND DIAPHRAGM DURING UDDIYANA BANDHA AND MUELLERS MANOUEVER



NATURE OF MUSCULAR ACTIVITY DURING VARIOUS CONDITIONS



Chapter 16

Herbal Medicines and Aromatherapy as Supplement to Yoga for Stress Management

S.C. DATTA

Every human being aspires for peace and happiness and is always on the look out for ways and means to get the same. In our present day civilisation, life is fast and our high living combined with economic and other disturbances prevalent all over the world, keeps us under constant stress. Behind the front they put on for the public, most people are disturbed, many are perturbed; others are worried to the point of confusion; some are frankly frustrated. Most of them do not feel up to par; they have a tiredness, a pain, a disagreeable feeling, a misery. They have a dozen matters they are worried about. They are plagued by apprehensions, fears, irritations. The students, in our educational institutions, also pass through constant stress as they have to work hard for doing well in examinations, in order to be successful in their future career. It is, therefore, no wonder that peace and tranquility have vanished from our lives leading to development of many ailments as blood-pressure, arthritis, nervous breakdown, heart attack, asthma, mental disorders, etc. The management of stress and amelioration of these diseases have been possible through Yoga therapy, and it has been more effective when combined with the use of herbal medicines and aromatherapy specially in the case of people who are severely sick or suffering from insanity and are unable to start yogic practices, until their physical and mental conditions are restored to normal.

It is now recognised by medical science that stress causes

chemical imbalance in the body and the pituitary and adrenal glands secrete potent hormones (STH, ACTH, desoxycorticosterore, etc) which combat and fight off stress for body's welfare. But when the stress is severe or continuous over a long period, the defence mechanism itself breaks down, leading to development of physical and mental diseases. In Yoga therapy, breathing exercises combined with āsanas (Postures), specially Sarvānga-āsan, Śīrśasan and Halāsan, produce stimulating effects on the above glands, with beneficial effect in such disorders. When Yoga therapy is preceded or combined with the use of herbal medicines and aromatherapy, the effect is enhanced. In fact the science of the use of herbal drugs and fragrances as tranquilisers were known to many of our ancient Yogis, but unfortunately, it was not passed on to the disciples and is now practically extinct. The fact that fragrance of flowers produce anasthising effect on the mind and senses has been mentioned by Swāmī Rāma in his book "Living with Himalayan Masters" page 137-142. When he visited the Valley of Flowers, in the Himalayas he got intoxicated with the fragrance, which resulted in loss of memory.

Modern researches on herbal medicines of India have brought out many interesting results and the plant *Rauwolfia serpentina* (Sarpagandha) is considered a wonder-drug. The roots of this plant had been used by practitioners of indigenous medicine in India for centuries as "Paglaka-dawa" or "Drug for insanity" and I remember my days of stay in Philadelphia U.S.A. in the year 1954, when *reserpine*, isolated from this plant was used on patients suffering from mental diseases in different hospitals there. The result was miraculous and almost all patients got cured of their mental illness within 2 to 3 weeks time and were discharged, with the result that many of the hospitals became empty. Headlines appeared in newspapers of USA in those days and it was the talk of the town. I have found that the paste from the roots of this plant, half a tea-spoonful a day, cures blood pressure, nervous excitement and schizophrenic conditions. Even in violent cases of insanity, I have found miraculous results with this drug in 2 to 3 weeks time. Among many such instances, I came across the case of an 18 years old student, whose mind was disturbed by failure to pass an examination. Restless and excited, he talked continuously but with-

out sense. He became resentful, violent, refused food and resisted all efforts of his parents and friends to calm him. Rauwolfia was administered to him by force, and within 2 weeks, he was quiet, eating again and sleeping. After this, he took up Yogic practices, which made him absolutely normal both physically and mentally and he also made considerable improvement in his studies.

Another miraculous drug which is helping cure of Epilepsy, both grand-mal and petit-mal, has been obtained from the plant *Marsilea*, a water plant common in the ponds of West Bengal. Pills made from it are being distributed in Calcutta and further information about it can be obtained from Prof. (Mrs) Asima Chatterji, Head of the Department of Chemistry, Calcutta University. After control of epilepsy through the use of this drug, resorting to aromatherapy and Yogic practices have resulted in complete cure in many cases.

Besides the two examples, given above, there are several drugs obtained from plants, which are used by medical practitioners for their effect on nervous system and some of these are mentioned below :—

(1) *Hyoscine*—from *Datura* and *Hyoscyamus* It is a central nervous system depressant, creates drowsiness and dreamless sleep. It is used as a sedative and antidote to travel sickness

(2) *Belladonna*—from *Atropa belladonna* It is used as sedative, antispasmodic and anti-cholinergic.

(3) *Cocaine*—from *Erythroxylon coca*—It is used as a nervous system stimulant, but is of great value as a local anaesthetic.

(4) *Cannabis*—From *Cannabis indica* It produces hypnotic effect and it acts upon the central nervous system especially the higher psychic centres producing mental excitement and exhilaration It is commonly used in three forms—

(i) Leaves—known as Bhang or Siddhi—in drinks

(ii) Ganja—Dried flowering tops—used in smoking

(iii) Charas—the resin from flowering tops—used in smoking.

(5) *Opium* and its derivatives—from *Papaver somniferum*

Codeine,

Morphine, These are narcotic drugs, which have also

Heroin, pain-relieving properties, and have strong effect on nervous system.

Laudanum

(6) *Papaverine*—from *Papaver somniferum*—It has antispasmodic properties

(7) *Strychnine*—from *Strychnos nux-vomica*—It is spinal and circulatory stimulant

(8) *Physostigmine*—from *Physostigma venenosum*—as motor depressant.

(9) *Veratrum alkaloids*—from *Veratrum viride* It is of use in threatened apoplexy, reduces blood pressure and slows overactive heart

The use of the above drugs in the hands of qualified practitioners of medicine have proved to be of value in combating mental illness, but their misuse without guidance leads to formation of drug-habit and often proves fatal in the long run. However, their judicious use, as precursor or supplement to Yogic therapy, under expert guidance, have proved beneficial in many cases and cannot be ignored.

Besides the herbal drugs, the use of fragrant materials for relieving mental tension and depression has been found to be of great value in most cases. When we go to temple or a place of worship, we find scented flowers and burning of incense (dhoop) and their pleasant smell creates a pleasant atmosphere of peace and tranquility, which gives calmness to our minds. We also get into a happier mood when we smell a good perfume either on a person or at a place sprayed with it.

Historical records show that in remote ages, physicians like Galen and Celsus, recommended use of fragrant herbs as sovereign remedies for hysterical convulsions and as a calming and antispasmodic remedy in case of nervous tensions and Mint (*Mentha*), Sage (*Salvia*) and sweet Myrtle (*Acorus*) are mentioned to be used for the purpose. In India, the use of Sandalwood, (*Santalum album*), Agarwood (*Asuillaria agallocha*), Camphor (*Cinnamomum camphora*) Myrrh (*Commiphora molmol*), Kuth (*Saussurea lappa*), fragrant resinous matters of different kinds and some fragrant herbs are used in burning as incense of materials, for creating a sublime atmosphere, both in houses and places of worship. For removing bad and unpleasant

ordours, the use of essential oils as Citronella, Lemongrass, Palmarosa, Vetiver, Eucalyptus, Cloves, etc. in sprays are also common. It is also the usual practice throughout India, to decorate the beds and rooms with flowers on bridal nights for creating a pleasant atmosphere and Rose, Jasmines, Champaka, Gandharaj, Tuberose, etc. are used for the purpose.

The reasons behind the above practices are that a pleasant odour brings relaxation of the mind and creates a feeling of happiness. This fact has now been developed in the science of *aromatherapy*, where a person suffering from nervous ailments is treated in a room sprayed with proper perfume for relaxation, or by asking the person to keep on his tongue, a lump of sugar in which one to three drops of essential oil has been put, without swallowing it, so as to cause it to dissolve slowly, producing a respiratory: inhalation of essential oil vapours, at least three times a day, for considerably lowering his degree of anxiety and nervous excitability.

Investigations on aromatherapy have been carried on almost exclusively by the French School to begin with and Italian School, later on. Of the first school mention may be made of Gettefosse[1] who has published many papers on aromatherapy and physiology of perfumes, Gache who investigated essential oils including sleep and Cadic and Meunier, who studied action of various essential oils on the nervous system. Valnet[2] has summed up all these and present knowledge of aromatherapy in a recent book.

In the Italian School, Getti and Gajola[3] studied action of essential oils on circulatory, digestive and nervous system and showed that spraying of essential oils of Geranium, Patchouli, Vanilla and Amber improved the persons in anxious state. The experiments consisted of sniffing pads of cotton wool impregnated with essential oil, or applied through masks or spraying the surroundings. Professor Benedicienti[4] pharmacologist, University of Genca showed that terpineol, geraniol, menthol, camphor, ionones, bornyl and terpinyl acetates act as sedatives, whereas, citral, citronellal, eugenol, thymol, benzyl and amyl acetates are nerve stimulants. Kobert[5] is of opinion that some essential oils like Valerian, Rosemary, etc. act as stimulant in certain doses and sedatives in other doses.

In general, aromatherapy has been used for two purposes, viz.

(1) Relief of anxiety and (2) Stimulation of the depressed. Both anxiety and depression are salient features of our age. Anxiety is characterised by abnormal nervous tension which causes distortion of thinking by transforming values into negative ones and causing the imagination to brood on fancied dangers and unpleasant incidents. *Depression*, on the other hand, is a sense of discouragement and loss of something that is crumbling, which eliminates all desire to initiative and all hope for life. These sensations cause worry and aversion to all pleasures of life and lead ultimately to great physiological disturbances in the human body.

The essential oils have many constituents and they are classified into the following groups for their psycho-neurotropic action. *Anxiety relieving group*—Terpene alcohons, terpene esters, terpene ketones. These are prevalent in essential oils of *Mentha sylvestris*, *M. aquatica*, Marjoram, Lavender, Petitgrain, Rose, Camphor, Neroli, Bergamot, Sage, Cypress, Myrtle, Pine and Valerian.

Nerve stimulant group—Aldehydes phenols, fatty esters and aromatics. These are present in oils of lemongrass, citronella, lemon, orange, verbenas, Ylang ylang, Champaka, Sandalwood, patchouli, Jasmines and cloves.

It has been reported that use of a mixture of different essential oils is sometimes more effective, pleasant and acceptable than pure essential oil. Very recent experiments have shown that woody green, violet, fresh and new mown hay notes are excellent for relieving tension and are at the same time anti-depressants.

Thus, it will be seen that aromatherapy is of great value in psychological disorders and when combined with the use of medicinal herbs and Yoga therapy, it can bring miraculous results. Researches on the subject have not, so far, reached the desired expectation, and it is hoped that organisations of Yoga therapy and practices, both in this country and abroad will give some attention to this new field of research which has vast scope and unlimited possibilities.

I have placed my observations before this enlightened gathering, and would like to hear from all their experience and

opinion on this subject as I am sure many people have further knowledge on this subject.

I thank you all for the patient bearing. "Om Namo Narayanaya".

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Chapter 17

High Blood Pressure and Yoga

RAM AUTAR SHARMA

In this new mechanised and competitive era, man is passing through a very busy life and has got little time for physical and mental relaxation. The mental worries in association with sedentry habits have contributed to a lowering of vitality and causation of many diseases including hypertension.

BLOOD PRESSURE

The rise of blood pressure from the normal is known as hyper tension or high blood pressure. The normal range varies from person to person.

Types of Blood Pressure

1. *Systolic blood pressure* : It is the maximum pressure during the systole (contraction) of heart.

Normal range 100-140 mm. Hg. average 120 mm. Hg.

2. *Diastolic blood pressure* : It is the pressure during the diastole of heart and coincide with the recoil of arterial walls.

Normal range 60 90 mm. Hg. average 75 mm. Hg.

Physiology of Blood Pressure

Blood Pressure depends mainly on two factors:

(i) Cardiac output:

It is the amount of blood which is pumped out in each cardiac beat.

(ii) Peripheral Resistance in the arterial walls.

It is the resistance which the blood has to overcome during its passage through the peripheral vessels.

Cardiac output varies only a little from person to person, so it is the peripheral resistance which determines the amount of blood pressure. The more the peripheral resistance, the more will be the blood pressure and vice-versa.

Peripheral Resistance Depends Upon

(a) The elasticity of the arterial walls
(b) State of the lumen of the blood vessels
(c) Viscosity of the blood
(d) Velocity of the blood flow

In the aged persons, the arterial walls become rigid and there occurs deposition of cholestrol in the inner side of walls, thereby decreasing the size of the lumen. This is why the blood pressure is more common in this age group. The obese persons, having high blood cholestrol levels are more prone to develop hypertension because of the same factor.

Causes of Hypertension

(A) In large proportion of cases (90% cases), the cause is unknown. This is known as Primary hypertension. However, there are certain predisposing factors which induce hypertension

Predisposing Factors

1. Stress and strain of life, emotional upsets, psychological trauma, excitements, hurries and worries of life, prolonged mental exertion, sedentry life habits, occupations leading to mental worries
2. Obesity, high fat diet
3. Hereditary Predisposition
4. Diabetes
5. Smoking

(B) Secondary Hypertension (10% cases):
This constitute the smaller group of hypertension. In this the specific cause is known:

1. Renal cause (Kidney diseases)
2. Endoctrinal disorders, like Adrenal gland Tumours
3. Toxaemia of pregnancy

Incidence

Mutalik and Grant (1962) in a random stratified sample from Poona found incidence of hypertension in urban and rural population as follows:

0.76% in urban population

0.6% in rural population

Among all heart diseases hypertension constitutes about 10%.

Symptoms

(1) Early symptoms : Headache, dizziness, palpitation, nervousness, irritability, easy fatigue, insomnia etc

(2) Late symptoms: (Associated with complications).

(i) Breathlessness, if heart has become decompensated.

(ii) Mental deterioration, cerebral haemorrhage and paralysis.

(iii) Blurred vision, if untreated may eventually lead to complete blindness.

YOGA

In the modern medicine, quite a number of anti-hypertensive drugs have been in use. Like in so many other diseases, yogic exercises specially Shavasana has been found to be quite efficient in treating the hypertensive patients.

Datey (1975) studied the effect of Shavasana in about 36 patients and found it to be quite efficient.

Analysis of Hypertensive Patients Treated at Aligarh Ram Krishna Vivekanand Yogashram

At our centre we took an experiment upon 27 patients in the age group of 30-60 years (average age 45 years) to see the effect of Shavasan. In addition to it, we also gave other exercises to

reduce weight and to relieve constipation. Patients were given Shavāsans exercises daily for about 2½ months after giving a preliminary training for a fortnight. After that they were advised to utilise the Shavāsana at their own residence to maintain the lowered limit and to come for their follow up.

Analytic Chart (Age Group 30-60 Years Average 45 Years)

Total Patients	*Success*	*Failure*	*Who Left the Shavasana in Between*
27	20	2	5
	Group 1 (13)		
	Group 2 (5)		
	Group 3 (2)		

Group 1·—The total number of patients was 13. They took complete training daily for Shavasana and other associated yogic exercises (weight reducing etc)

Blood Pressure Report

	When patient came	After 2½ months Shavasana
Systolic Blood Pressure	150-180 mm. Hg.	120-1 ′0 mm Hg.
Diastolic Blood Pressure	100-110 mm. Hg	80-90 mm. Hg.

They were also relieved of their symptoms like headache dizziness, nervousness, palpitation, easy fatigue etc.

They were advised to continue the exercises at their residence and to take low salt diet and low fat diet.

Group 2:—The total number of the patient was 5. These patients were given 1 tablet calmpose thrice a day at the start of training. In two cases in addition to above 1 tablet of Adelphane Esidrex was also advised in the morning.

After about 15 days of Shavāsana Yogic exercise the anti-hypertensive drugs were cut off slowly, and after one month the drugs were gradually stopped. After that the Blood Pressure was lowered with Shavāsana only and patient were relieved of their symptoms.

Blood Pressure Without Drugs	*With Drugs*
160-200 mm. Hg. systolic	120-140 mm. systolic
100-120 mm. Diastolic	80-96 mm. Diastolic

After 15 Days of Exercises when Drugs were Stopped

Blood pressure Systolic—140 mm. average (Hg)
Diastolic Blood Pressure—96 mm. average (Hg)

Group 3:—There were 2 patients in this group These patients had been taking treatment for last 2 years. They were given the same yogic exercises alongwith 1 tablet of Alpah Methyl DOPA in the morning twice a day alongwith 1 tablet of Calmpose twice a day. After about a month of training, patients started taking one tablet Alpha Methyl DOPA and 1 tablet of Calmpose only at bed time Therefore with this Yogic exercise there was about 50% reduction in the dose of Antihypertensive drugs.

In other two patients we however, could not decrease the blood pressure by Shavāsana.

Role of Yogasana in Hypertension (specially Shavasana)

Normally vessels are under the control of the vascomotor nerves under the influence of vascomotor centres in the brain stem, which in turn are regulated by cerebral cortex. The stress and strain of life, psychological trauma, excitement and emotions etc. act directly or indirectly upon these vascomotor centres under the direction of higher centres i.e. cerebral cortex, leading to increased sympathetic tone. This leads to contraction of the blood vessels (Arterioles) which raised the peripheral resistence and thus the blood pressure is increased.

Yoga raises the arousability of the cerebral cortex (Datey, 1975) and helps in sending decreased impulses to hypothalamus in the brain which in turn decreases the sympathetic tone and causes decreased peripheral resistance. Therefore, the blood pressure also comes down. In other words for the same psychological and emotional upsets the response of brain (cerebral cortex) decreases. In short Yoga mitigates the stresses and other environmental influences predisposing to hypertension.

Technique of Shavāsana

Patient is asked to come with empty stomach in the morning with loose clothes He is asked to lie in the supine position, lower limbs making an angle of about 30° from the trunk. The forearms are held in the mid prone position. Fingers are semiflexed. Eyes are kept closed. He is asked to relax himself fully. Patient is taught to have slow respiration. Then he is asked to concentrate over toes of his lower limbs. Slowly he is instructed to relax his whole body. In the end it is suggested that he should remove all the feelings out of his mind. This procedure keeps the patient inwardly alert and makes him forget about his usual thoughts.

Patient can repeat this without effort once he learns the exercise well. With this the patient is advised to think as if he has got no life. Physical relaxation can be checked by placidity of limbs from times to time.

A preliminary training of about 15 days is given before starting in a regular way. After a perfect training the respiratory rate during the exercise is about 1/3rd of the normal rate.

(2) Tār Asāna and Nāva Āsana

These aim at decreasing the weight. These are subsidiary asanas recommended in relevant cases (in obese persons). These decrease fat in the body and may decrease the blood cholestrol.

(3) Padamāsana and Vajrāsana

These āsanas aim at giving rest to the brain.

(4) Nādishodhan Prānāyama

This aims at giving fresh oxygen to the brain and thus making one alert to do work efficiently for long. Therefore, they may also help in relieving tension to some extent.

DIET OF THE PATIENT

Patients should be advised to take low salt diet. About less than 1 gm. of salt per day (Sodium chloride) is advised or a

substitute in the form of potassium chloride may be advised.

(2) Restricted Fatty Diet

Restriction in the intake of fatty diets is also advised.

(3) Caloric Value

Patient is advised to take a diet of about 1600-2500 calories per day according to weight, occupation, age and sex.

The prescribed diet for hypertensive patient is as follows : (as regards their calorific value).

Normal Persons	*For Hypertensive Patients*
50% Carbohydrate	55%
15% Proteins	25%
35% Fats	20%
100%	100%

Sun mary—Yogic exercises are veiy efficient in relieving tension, mental worries and the total fat of the body.

All parts of the body work in synchronicity. Yogic exercises taken efficiently, regularly and with interest are largely beneficial in decreasing the blood pressure and can be recommended to all hypertensive patients.

Chapter 18

Neurophysiological Manifestations of Yogic Practices

G.S. Chinna

Yoga influences a wide range of neural functions. The earlier manifestations are the modifications of sensory thresholds, perception, an improved control over motor activities and coordination of ventilatory responses to the somatic functioning. This is followed by a gradually increasing interaction of somato visceral and autonomic activity regulations. An extension of the physiological ranges of different control systems in the body is brought about through a control over the peripheral and central control mechanisms, thus enhancing the tolerances to different stresses originating from external and internal environment of the body. An increase of the voluntary somatic controls over the autonomic and visceral activities is observed which appears to bring about an enhanced acquisition of efficiency for the practice of alterations in states of consciousness. By modifications of the sleep and wake cycle, some altered states of consciousness are produced both in the awake and sleep phases. Much of the information about these states is still based on subjective realisations and their neurophysiological correlates are either unknown or inadequately explored. Some of the available evidence in support of the above statements shall be reviewed.

Chapter 19

Attenuation of Cardiac Vulnerability to Dysrrhythmias by Exploitation of Cardiovascular Reflexogenicity through Uddiyan & Jalandhar Bandhs

R.C. PANDAY

The brain, is the most inaccessible organ for experimentation in humans. Mostly we have to depend upon direct evidences utilising some of the known functional connections of the brain to peripheral organs. Functional regulation of vital medullary centers can be influenced by certain regular yogic practices so as to improve the physiological control of a peripheral organ the heart. With the established knowledge of baroreceptors and other reflexogenic areas of the heart and the lungs, we have provoked biphasic blood pressure fluctuation by Uddiyan and Jalandhar Bandhs. This stimulates barroceptors with or without the involvement of pulmonary receptors having direct neural links with cardiac regulatory centers of the brain. ECG parameter was explored during and after the yoga practice.

In the initial trials, numerous ECG irregularities were disclosed indicating a heart more vulnerable to electrophysiological instability. But as the practice progressed, subsequent records indicated progressive decrements in manoeuvre dependent ECG irregularity.

We conclude, therefore, practising such bandhs increases cardiac potentiality against sudden haemodynamic brunts.

SECTION IV

YOGA AND EDUCATION

Chapter 20

Yoga for Educational Institutions

B.K S. IYENGAR

Before I deal with yoga and its need in Educational institutions, let me define yoga and education as I feel it.

For me yoga is character building. Each one of us develop habits and behaviours without giving a thought to them whether they integrate or disintegrate Yoga is the reconditioning of the behaviour pattern in each of us ensuring unity and harmony in each and every cell of our body, poise and calmness in the mind and serenity in the self. This is the best personality one likes to possess wherein, he not only lives with in himself in perfect maturity, clarity and peace but also with society.

What is education ?

This word 'education' is derived from the Latin 'educare' meaning 'to educe', 'draw forth' or 'unfold' the latent or potential, i.e. to develop the talents and gifts of an individual. In short, it is the drawing out of the best qualities of a person. Though the approaches of both are identical, education views objectively and yoga subjectively, hence, the need of yoga in educational Institutions.

We are all endowed, in our individual ways, with innate capacities which need to be unfolded. Some of us have a keen sense of truth or justice, of beauty or loyalty. Some of us, on the other hand, may be extremely intelligent but lazy, indifferent, or pleasureloving ; others may lie, cheat and remain selfish.

It is the task of a good educationist to help his students to realise their strength as well as their weaknesses; to contribute to their growth and development on the one hand and to help them to eradicate their weakness on the other. Yogic descipline is an excellent aid in scuh an education for it

attempts to remedy the defects and to cultivate the good in oneself. It brings discipline into the life of the student, be it at the level of the physical, the mental or the spiritual, and makes him aware of his strength as well as his weakness.

Unfortunately nowadays, instructions given in educational institutions to enable a student to pass an examination are often confused with the term "education", which is also mistaken for a licence to obtain employment and to earn one's livelihood. Of course, one cannot underestimate the need to earn a living, but does man live by bread alone ? Is it not his duty to cultivate his own personality too ? He must learn to understand his own physical and mental well-being so as to be perfectly conscious of his words, thoughts and actions.

Does Yoga help one to build up such qualities ?

With my vast experience in daily practice and teaching of Yoga, I say without the slightest hesitation that Yoga plays a positive role in the development of an individual as an integrated person. The daily practice of Yoga helps one to achieve a perfect understanding of the intellect of the body, for the body has its own intellect. This knowledge of the working of one's own body is based on direct experience

For example, the brain may be sure of being able to perform Shirshasana (head balance) By this I mean that we may know the technique of doing Shirshasana to such an extent that we feel confident that we will be able to do it. But when it comes to the actual performance of the. Asana, one realises that one has to understand the use of the arms, the neck, the correct position of the spine and how it supports the legs, how the legs are to be stretched, where exactly the weight should be and how one should balance by distributing the weight on to the various parts of the body and without putting a strain on the arms or the neck. In this way one gradually masters the art of keeping the body energy in a "zero" position, i.e. observing that the energy of the body is not dissipated but is adjusted and retained within the body.

By this training one learns that the body intellect is and what direct perception means. This is the factual knowledge or knowledge based on fact, as the body brings to the attention of the brain a new light, a new experience of the intellect of the body and teaches it to adjust or adapt itself.

This pliability of the intellect and its capacity to learn from new experience leads one to true education as distinct from an education which depends upon information gleaned from books and lecture notes.

Yoga is a subject that has to be practised and experienced, not merely discussed or argued about Even if one wants to discuss it or argue about it, one has to experience it What one experiences is direct knowledge, and it is the imprint left by this direct knowledge which makes discussion possible. If the experience does not co-ordinate with the mental image (the thinking about the experience), then either the experience is insufficient or the thinking over of the experience is not practised. When both tally, that is factual or direct knowledge—that is Yoga.

Through the practice of Yoga one attains not only physical well-being or "toning" of the body, but emotional stability and clarity in the intellect also. Hence Yoga is an art which disciplines and develops the body, the emotions and the intellectual faculties, its purpose being to revive man.

It is a science, since it is a systematic study based on the principles so pithily expressed in the aphorisms of Patanjali, and also in other books on Yoga such as the Yoga Upanishads.

It is a philosophy, as it studies the principles of right conduct and shows thereby the road to right living which has a backing of centuries of experience.

The path of right living is paved with eight steps :
Yama, Niyama, Āsana, Prānāyāma, Pratyāhāra, Dhārana, Dhyāna and Samādhi.

I shall attempt to describe each of these very briefly.

Yama or social ethics, is made up of the five commandments of harmlessness, truthfulness to all beings, abatention from theft, from unchastity and from avarice. This is meant to bring under control the Karmendriyas or the organs of action.

Niyama or personal ethics comprises the five rules of internal and external purity, contentment, fiery aspiration, spiritual reading and devotion to God. Thus an individual's daily activities with regards to personal hygiene, cleanliness not only in body but in thought and speech, were emphasized long ago in Indian philosophy. Niyama is the art of disciplining the Jnānendriyas or the organs of perception. Constant striving for self-improve-

ment by study and devotion to one's duty and vocation were insisted upon. These principles which are termed as Universal principles, are worthy of emulation by one and all, whether one is rich or poor, a man or a woman, old or young, and irrespective of time, place or circumstance.

Then comes Āsana or posture—tersely described by Patanjali as "Right poise, right attitude, right position". These Āsanas were devised to develop the physical and psychological stability, good health, lightness and agility of body and mind. A perfect body is the only fit instrument for God to dwell in. While performing the āsanas, one should use the body as a bow, Āsana as the arrows and the self as target to experience the state of just being, without the dualities of body, mind and self but all three as one.

Truly have the ancients observed "Mens sana in corpore sano" a healthy mind in a healthy body. Health is not a commodity one can buy in a market place One has to work for it and work for it hard "100% inspiration and 100% perspiration" to acquire good health. What is good health? It is a state of perfect equilibrium between the body and the mind so that one is free from the consciousness of the body and can use his intellectual faculties to the utmost.

Nature has provided us with an excellent capital—the body —to build up vast resources. The moment the body is neglected, education suffers. When the student's health is impaired, he lags behind in his studies. The State pays the price in terms the drop-outs and the consequent waste of time, money and energy.

Prānāyama or breath control is the right control of the life-force which consists mainly of the regulation and control of the breath. Combined with the practice of āsanas it keeps the body and the mind fit. Regular āsana and Prānayāma practice are essential to maintain the body system, the mascular system, the respiratory system, the circulatory system the digestive system the excretory system, the reproductive system and the glandulart system in healthy state.

Pratyāhāra, is concerned with the restraint of the senses. It is, in fact, an education of the senses. In Yoga there are techniques by which the senses are drawn to their source and thereby made free from desires. This gives mental stability which is essential for intellectual clarity, alertness, sharpness and

agility. An alert and agile mind is free from tensions and can deal with a day's work with ease.

Only when the body and mind are strengthened and refined by the practice of the first five limbs of Yoga, is one considered ready for the remaining three steps, Dhāraṇā, Dhyāna and Samādhi These, however, need not be introduced at school or college level, but an aspirant may pursue them for his own self-enlightenment just as a graduate proceeds for post-graduate studies in a subject of his choice. Just as special care is needed to enable a young sapling to grow into a healthy great three which can bear fragrant fruits and flowers, so meticulous care is needed for moulding a young aspirant so that he can be an example and a guide to others.

The first five steps of Yoga, if cultivated with devotion, will prepare the body, the mind and the intellect to serve as fit vehicles for spiritual growth which has to end with final absorption into the Infinite—our true purpose and natural end.

As the tree has roots, trunk, branches, leaves, bark, sap flower and fruit so yoga represents a tree with Yama as roots, Niyama as trunk, Āsanas as branches and leaves. Does not Prāṇāyāma aerate the body with the breath of life ? Pratyāhāra which prevents the energy of the senses from flowing outwards and turns it within enabling him to find true happiness as the bark prevents the twigs not be eaten by worms or insects. The sap is the Dhāranā in the form of intelligence which flows throughout the body Dhyāna is the flower which in turn ripens into fruit as samādhi. As the natural termination of the tree is in the fragrance of fruits, so also the sādhanā of yoga starts with the root, the body and leads to spiritual realisation through the senses, the mind, the intellect, the consciousness and the conscience. As the tree cannot be seperated from the root to the fruit, the various aspects of yoga cannot be seperated from Yama to Samādhi. This is integral Yoga.

Our bodies and minds are like fallow lands, lying untilled and unsowed. As a wise farmer, (the kṣetrajña) ploughs the land (the field) provides water and fertilizer, plants the best of seeds, carefully tends the crops and at the end reaps the best of harvest; for a student of yoga, his body and mind are the field. With yama and Niyama he ploughs the body; removes the weeds in the form of impurities and diseases by asana ; waters it with

energy through Prānāyāma and practices Pratyāhāra as fertilizer for right thinking and right action ; tends the self as a crop to reach Samādhi, the harvest of peace and harmony Thus he becomes a true owner of his sacred body

I have taught Yoga in educational, cultural, military and the other institutions with beneficial effects and I cannot overemphasize the need for Yoga among the young today. We live in an era of speed, stress and strain. Such a life makes heavy demands on our nerves, which are but invisible branches of the brain. When the nerves collapse, anxieties and neuroses of one kind or another set in. The individual becomes a nervous wreck. "Prevention is better than cure", and yoga is the "prevention" It ensures strong yet elastic nerves that can face a good deal of hectic activity with equanimity and poise. It is a natural tranquilliser. It is the only system, as far as I know, which develops harmoniously both brawn and brain. It can be taught without heavy financial investment and without equipments. It can be done at any time, according to one's convenience—it can even be adapted to the needs of the undernourished or the over-fed.

Let us introduce yoga as drill upto IXth standard, anatomically and physiologically from the Xth to XIIth standard, as mind culture in colleges and as spiritual culture in Universities This is the way to form syllabus in Yoga

In fact, after forty five years of teaching Yoga I feel so strongly on the subject that I would insist on withholding the award of a degree to a student unless he is found fit not only intellectually but physically too. At the same time I would not consider an athelete properly qualified unless he is also intellectually developed.

What I wish to emphasize is a harmonious all-round development of the student in body, mind and spirit, a well-rounded personality with a strong character. Only such students can build a healthy, just honest, self-reliant, independent and therefore a healthy and a happy world.

Chapter 21

Integration of Yoga in Modern Education

K. Krishna Bhat

Abstract of Part I

Yoga teaches a method by which one can improve restrain and get, physical, mental and spiritual health. There has been sufficient research work which showed the validity of yogic practices Today Indian Universities were established nearly 150 years ago under colonial conditions. They do not have the continuity of Indian culture and knowledge in their core-curriculum.

Part II

We are interested to see how this Yoga can be introduced in modern education which has got the dis-continuity as we have seen earlier. The splendid idea can be put into marvelous practice as follows :

1. The study of yoga should be available in Modern Universities
2. There should be a continuous growth of the subject by doing different types of research. The findings or the new ideas should find a place in the curriculum of yoga subject.
3. The different techniques should be introduced in different levels of primary education i.e. upto S.S.L.C.

In the direction of introducing yoga into University level as a subject of study, already the author worked in the Indian Institute of research in Yoga and Allied Sciences, Tirupati, to start with a diploma course as was framed. It got the following papers and practical.

Theories

		Marks	
1.	Yoga	100	
2.	Yogic texts		
	(a) Patanjali yoga sutra	40	100
	(b) Hatha yoga pradipika	30	
	(c) Gheranda Samhita	30	
3.	Modern Medical Subjects		
	Anatomy and Physiology.	50	100
		50	
4.	Modern Medical Sciences		
	(a) Biochemistry	50	100
	(b) Psychology	50	
5.	(a) Philosophy of Yoga and Sankhya	50	100
	(b) Ayurveda	50	

Due to some political pressure Sanskrit was not made as a paper.

Practicals

1.	Asanas	100
2.	Advanced Asanas	100
	Pranayamas (Suryabheda, Anulomaviloma Sitali) Bondhas etc Mediation technique.	

To over-come the shortenings of the above syllabus the author got again chances in Manipal, Karnataka.

Kasturba Medical College Manipal has decided to open a postgraduate Diploma in Yoga which will be affiliated to University of Mangalore. Here the syllabus will be as follows : Total marks are 700 (100 such)

1.	Therapeutic yoga	100
2.	Classical Yoga	100
3.	Basic Medical subjects (Anatomy, Physiology and Biochemistry)	100

4. Philosophy of yoga	50	100
Basic Psychology.	50	
5. (a) Ayurveda	50	100
(b) Basic Sanskrit.	50	

Practicals

	Marks
1 Asanas, Mudras	100
2. Bandhas, Kriyas and Pranayams and Meditation technique.	100

Once we finish this course one can start a post graduation in Yoga. It can become a two years course. Totally 700 marks may be given as follows :

I Year

1. Different Schools of Yoga
2. Classical thought of Patanjali
3. Comprehensive Hathayoga
4. Philosophy of Sankhya towards Yoga. Bagavadgita Ch II etc.
5. Sanskrit.

Practical

1. Asanas with steps of breathing
2. Mudras and Kriyas

Year

1. Effect of Asanas on different systems of the body, Shatkriyas with effects and treatment (1) Hypertension (2) Br. Asthma (3) Mental stress (4) Back aches (5) Siatica (6) Constipation.
2. Classical text of Patanjali with Vyasas commentary.
3. Method of Pranayama as it is in Kurma Purana, and other texts.

4. Different types of Meditation
   1. T.M. and Buddhist method
   2. School of Sri Ramakrishna
   3. Kriya Yoga, and other tantrik method
   4. Classical meditation as it is taught in Bhagvadgita Ch. VI
   5. Sanskrit.

Practicals

1. Advanced Asanas
2. Treatment of the above stated diseases through Yoga.

As soon as this batch comes out we should start in the Universities as an optional subject to the Degree level. The syllabus can be synthesized by using the above courses.

I am not going to talk about the research possibilities here. But only one point I want to emphasize i.e. *The research workers should study Yoga, practice Yoga and only when they become master's of Yoga, they are really eligible to do research work in Yoga as in other faculties of knowledge.*

Let us see how it can be introduced in primary education level. From tradition, if we see, all the intellectual workers of India were introduced to Yoga through meditation, "Upanayanam". The famous sage "Apasthamba" tells "Saptama brahma varchasa kamah" (to get the "Brahmavarchas" one should be initiated at the age of 7. Hence in Modern education, in 3rd to 7th standard Japa can be introduced, something like Sandhya". The children should go to urinals, or lavatory according to the need and wash the legs, hands, face to enter the class. The class teacher should ask the students to meditate after 2 Pranayamas

When they come to high school level they should be taught some asanas, with Physical Hygine and food regularties. This practice can be intensified even in the colleges.

The basic meditation should continue from primary level to College level Like this, ancient Yoga can be introduced in Modern Education.

Chapter 22

Behavioral Principles Cast in the Non-Reductionistic Context of Classical Yoga Psychology

JOHN R. HARVEY, PH.D.

Introduction

The elucidation of a number of principles of learning has undeniably had a significant impact on the field of psychology both theoretical and applied. The pioneering work of Pavlov on classical conditioning (Pavlov, 1927,1928), the research of Thorndike on reward learning (Thorndike, 1911), and the writings and research of Watson (Watson, 1916), established a theoretical framework in which human behaviour was seen as learned via certain lawful relationships. Systematic application of these principles to a variety of clinical and applied problems followed upon the work of Skhinor (1953) and Wolpe (1958). Throughout the 1960's and into the 1970's, an optimistic and almost euphoric atmosphere existed. It was felt that behavioral principles allowed both a comprehensive understanding of man's behavior and simultaneously provided an efficacious means for changing behavior.

Yet an overview of behavioral psychology today suggests that a certain reductionistic tendency is manifesting itself. Within the field stridently debated controversies divide a number of factions. On one hand, there are the strict radical behaviorists; on the other the more permissive cognitive behaviorists. Behavioral clinicians tend to focus their energies on more restricted areas such as weight loss, assertion training, social skills, or cognitive therapy. Similarly, researchers have focused

more of their energies on more restricted subjects as opposed to formulating global all inclusive theories.

In reference to this latter trend in the whole field of learning Hill (1977) notes "*The current trend in the psychological interpretation of learning seems to be toward both narrower and more formal theories*" (p. 254).

The purpose of this paper is to discuss the manner in which *behavioral principles might be understood within a wider context, in this case classical yoga psychology as detailed in the Yoga Sutras of Patanjali* (Woods, 1914). Now, there are already several references in the literature on the compatability of behavior therapy and Eastern psychology. Thoreson and Mahoney (1914) state that transpersonal techniques share many things in common with behavioral self control strategies Similarly, Deane Shapiro's book (1978) *Precision Nirvana* is a guide on the *use of behavior self control techniques to promote total self development. And a chapter by Harvey* (1976) *compared behavior therapy techniques and those involved in the self training system of yoga.* Admittedly in these references the interface between behaviorism and mysticism comes in the area of self control and self mastery. Yet in this paper rather than mere compatability it will be shown how behavioral principles can be viewed within the broad and complete system of classical yoga psychology. It is hoped that this integration will both create a non-reductionistic context for behavioral principles and simultaneously allow for a more precise and detailed understanding of certain aspects of yoga psychology.

Important aspects of the theoretical framework of yoga will be presented. However, it is important to note that in yoga theory stems from practice, and is based on experience. In this sense yoga is described as a science, one built upon the edifice of systematic personal experience. Many adherents of behavioral psychology have vigorously eschewed any adherence to theoretical constructs (Skinner, 1953) because ultimately it was felt that such constructs did not contribute to the establishment of functional relationships. In this light it might seem inappropriate to attempt to mesh yogic theory with behavioral principles. *But again theory in yoga is not merely deductive. The theoretical ideas of yoga are organized from experience and have their ultimate use in that they allow* those without experience and knowledge to systema-

tically structure their experiences and to understand what they have experienced. Theoretical constructs exist in the yoga system because they have proven themselves useful. Such practical theoretical constructs may then be quite appropriately meshed with behavioral principles both as a guide to a non-reductionistic understanding of behavioral principles and simultaneously as stimulus for behavioral research.

Basic Concepts of Behavioral Psychology and Yoga

Perhaps the essence of behavioral psychology rests on the notion that certain meaningful relationships exist between stimuli and responses. As Rimm and Masters (1979) note, "···*behavior is largely under stimulus control*, and when the behavior therapist establishes his objectives, they are conceived of in terms of specific responses occurring in the presence of specific stimuli." (p. 9). In Skinnerian or operant learning the *consequences following a behavior are crucial in determining whether or not that behavior will occur more frequently.*

Skinner contended that the majority of our behaviors are operants. They are emitted by the organism and maintained, increased or decreased in their frequency according to the consequences that follow the behavior. Skinner identifies three major types of consequences, *positive reinforcement, negative reinforcement and punishment.* While the first two act to increase the frequency of the behavior, the latter decreases the frequency of the behavior. A discriminatory stimulus indicates a setting in which an operant behavior is more likely to occur. These basic principles together with the knowledge of schedules of reinforcement and the principles of shaping suggest a means by which most human behavior is learned.

The language of the Yoga Sutras (a basic text of yoga psychology) is surprisingly similar to that of Skinner. The second chapter of the Yoga Sutras which discusses Yoga practice has two Sutras which immediately draw the attention of learning theorists. In Arya (1976) these two sutras are translated as follows. "*What remains (as residue) after pleasure is attraction. What remains (as residue) after pain is aversion*" (p. 29). The central ideas expressed by these two sutras is that the pleasure experience from a particular behavior, object, or

situation leaves a residue on the canvas of the mind or Citta, the Sanskrit term. It is this residue which creates a tendency to repeat the action. The action of this residue may be fully conscious, partially conscious or unconscious. Aranya (1977) notes that in the case of attraction the mind and senses are drawn involuntarily and unconsciously towards objects. According to Yoga psychology, *any behav or, thought, or word that we utter is influenced by the tendencies created by the residues*

These residues may be described in operant terms. *Attraction is the action of positive reinforcement, aversion is the action of negative reinforcement and punishment.* In yoga psychology these two phenomena of learning are not merely described in terms of their operation but are seen in the context of the nature of mind. The yogic term *Citta refers to the mind as a storehouse of sensory impressions and simultaneously as a storehouse of inclinations to behave.* While yoga psychology does not discuss learning *per se*, it is clear that events and environmental stimuli leave traces which are not just a neutral memory but instead are predispositions to act in a certain manner. These predispositions underlie behavior patterns and habits.

It is the contention of Yoga that our lives are largely contitioned and we are under the control of the environment. Taimni (1961) in discussing the two Sutras quoted above notes "The attractions and repulsions which bind us to inumerable persons and things in the manner indicated above, condition our life to an unbelievable extent. Consciously or unconsciously we think, feel and act according to hundreds of biases produced by these invisible bonds and there is hardly any freedom left for the individual to act, feel and think freely" (p. 149). Skinner in a similar vein notes" we are all controlled by the world in which we live, and part of that world has been constructed by men". (Skinner, 1955).

Applications

An interesting point of agreement between Yoga psychology and operant conditioning is the *emphasis on practical change.* Both perspectives see the mechanisms of conditioning as ongoing and controlling. The issue is as Skinner states "...are we to be controlled by accident, by tyrants, or by ourselves in effec-

tive cultural design" (1955). In a similar tone the 16th Sutra states "*The misery which is not yet come, can and is to be avoided*" (Taimni, 1967, p 168).

In a behavioral approach behavior change begins with the selection and operational definition of a behavior. Then data on the frequency, intensity or duration of the behavior is gathered. Sequential relationships between stimuli and responses are carefully analyzed. As a result an objective view of the behavior is obtained both in terms of its rate of occurence and its stimulus response relationship. Then antecedent and consequent stimuli are manipulated to increase or decrease the occurrence of the behavior.

In Yoga psychology, there is similarly an emphasis on the restructuring of the environment to change behavior. As an example, *a regular time and place for meditative practice is encouraged by Yoga teachers as time and location become conditioned cues for maintaining that practice.* But in yoga the existence of several *higher order mechanisms* are posited. The most crucial of these is *awareness.* As an individual observes the interplay between environmental stimuli and internal inclination he may choose either to act or not. *If he acts the link is strengthened, the residue is made stronger.* If he does not act the link is weakened. In yoga this is referred to as de-energizing a certain predisposition-stimulus link. As this occurs a number of times the link is weakened, the residue becomes less active. *De-energizing would be similar to extinction in the* behavioral literature.

Awareness involves the unique ability to observe objectively and impartially. *This is called witnessing.* It appears to be similar to what is known as the "reactivity" of self monitoring in the behavioral literature This behavioral self-monitoring is described by Thoreson and Mahoney (1974) as an individual observing his own behavior. This self monitoring is "reactive" when the behavior being observed begins to change. This reactivity, while somewhat puzzling to behavioral psychologists, is understandable from a yoga perspective. It is the process of awareness. In those students where the self monitoring creases to create change, it is probably because the act of self monitoring is no longer creating the unique experience of awareness. In other words, the behavior of self-monitoring has become a habit, is automatic.

An aspect of yoga awareness is what might be called

sensitivity or awareness on increasingly subtle levels. It has been suggested by behaviorists that an important issue in self control is the difference between immediate and delayed consequences. Many behaviors which have an immediate pleasurable effect have long term negative consequences. Good examples of this are eating sweets and smoking tobacco. Similarly such activities as fasting and jogging may be initially unpleasant but bear long term positive results. In behavioral approaches this gap is bridged by moving the appropriate consequences closer to the behavior or through the use of cognitive meditation of the appropriate consequences. *The goal of many yoga practices is to increase one's sensitivity to the point that the negative or harmful consequences are immediately apparent.* A yoga student is like the person who has had no sugar for two months. It only takes one small bite of junk food for him to directly feel that this particular food is not good for him. *He listens more accurately to the internal information.*

Another important aspect of awareness is *non-identification.* As the individual develops the ability to observe or witness he can watch the inclinations, the attractions and aversions without acting on them. He does not have to identify as the actor or doer. This mechanism of non-identification is described in the Bhagvad Gita or Celestial Song, another basic text of yoga psychology, as follows : "Even as all waters flow into the ocean, but the ocean never overflows, even so the sage feels desires, but he is ever one in his infinite peace" (Mascaro, 1962, p. 54). The personality implications of non-identification will be discussed more fully later in this paper.

Actually in yoga the emphasis is not so much on reducing specific troublesome behaviors but more on *increasing growth oriented behaviors.*

Behaviors relating to relaxation, breathing correctly, physical health, proper diet, stillness, and mental concentration are systematically developed. In behavioral terminology this would be similar to the notion of competing responses, i.e., responses the performance of which compete with other possibly more negative behaviors. Yet these are more than competing responses. Each yoga technique or practice, while unique unto itself, is simultaneously a vehicle for developing awareness

From the yogic perspective *personality is essentially the*

habits of daily living. Change, self development, movement towards health, and actualization of potential occur as the habits of everyday living are transformed. In this light, *awareness of all conditioned behaviors, the ability to see these behaviors in a stimulus response context,* and awareness of the underlying attractions and aversions are important factors *As one gains the skill to overcome conditioning the stage is set for personality growth*

The Broader System of Yoga Psychology

The Yoga Sutras are not merely an ancient text presenting a description of mechanisms for conditioning that we in modern times are only too familiar with. The two sutras quoted above are a small part of an entire system. The two mechanisms of attraction and aversion are two of the five *Kleshas* or sources of misery. These sources of misery are arranged in a hierarchical chain Attraction and aversion occupy rungs three and four on that chain. *Rung two is Asmita described by Taimni (1961) as "The identify or blending together of the power of consciousness with the power of cognition"* p. 142.

In commentaries this is referred to as the sense of ego, or sense of I amness. In Yoga the hierarchical relationship indicates that attraction and aversion are activated by the sense of I amness. Without an ego sense, positive and negative events have no effect. Cognizance of this relationship opens up opportunities for a wider understanding of conditioning and behavior change. According to the concept of Asmita as we change the frequency of a behavior and reduce a particular attraction we also have an effect on our sense of self identity. And of course *it is frequently noted that changing behaviors does indeed change self-concept.* This relationship also goes in the other direction, i e., *as we change our self-concept, our attractions and aversions change,* inclinations are weakened and the frequency of behaviors changes. Thus in the yoga system, working with that concept of who we think we are is important to behavior change.

This emphasis is even clearer when the first Kleṣa is examined. This is known as *Avidyā* or ignorance and it refers to cosmic ignorance, or *mistaking consciousness for the vehicle which contains it.* This ignorance in turn activates the sense of ego. The image tendered by the Yogis is that of a house. We

use a house, take care of it, live, sleep, eat and work in a house, but we do not think that we are the house. Similarly, our physical bodies are a house for our consciousness. When that crucial distinction is lost we have ignorance, the resulting sense of I amness and then the twin mechanisms of attraction and aversion.

Within the yoga system a crucial aspect of behavior change is to *go directly to the source of all problems*, i.e., ignorance of our true nature. Again the prime method is to establish awareness; the technique is meditation. With meditation one learns to witness the attractions, aversions and ego identities and eventually uncover, i.e., become aware of the pure consciousness within.

Yoga psychology also offers several other important perspectives on the mechanisms of attraction and aversion. In the yoga sutras, following the description of the Klesas, there is a discussion of karma (meaning action) and reincarnation. There it is stated that the latent impression, i.e. residues of actions based on any of these five klesas will become active at some point, whether it be in this current life or in a life to come. In the twelfth sūtra it is emphatically stated that *as long as these roots (latent impressions) are existant they must produce results in terms of lives of different classes, length and experiences.* In other words, the mechanisms of pleasure and pain are wrapped into the cause and effect relationships that create experience in a given lifetime and across the span of several lives

Also yoga psychology provides an explanation of the motivations that lead to certain behaviors being emitted and that influences which factors may be reinforcing and or punishing. Rama and Ajaya (1976) describe four basic urges These are the need for food, self preservation, sleep and sex. The organisms efforts to satisfy these urges leads to the performance of specific behaviors. *These needs determine* what will be reinforcing, i.e., the mechanism of attraction and aversion function within the context of these four basic urges. Reinforced behaviors are those that act to satisfy the urges or that terminate conditions preventing the satisfaction of these needs. Punishing events are those that frustrate meeting or satisfying these urges.

The form that these needs take depends to a certain extent

on the assumed ego identity As these four basic urges are either satisfied or frustrated, *basic emotional reactions occur.* These emotional reactions influence the strength of the residue left by the experience of attraction and aversion. Thus, according to the yogic perspective, *the emotional structure of the individual is closely intertwined into all conditioned behaviors.*

The upshot of this is that self-development must then include a harmonious regulation of the behaviors involved in meeting the four basic urges. This is a way to regulate the emotions as well. From a more behavioral perspective, efforts to change behavior must attend to the four basic urges and also to the emotional factors involved in the learned behavior.

In this presentation a number of points have been raised. A reductionistic tendency in behavioral psychology was described. The principles of operant learning were compared to the yogic principles of attraction and aversion. In this light agreement was seen on the largely conditioned nature of man's behavior. However, on the issue of behavior change, yoga psychology postulates awareness as a crucial variable underlying behavior change. In addition the mechanisms of attraction and aversion were placed within a hierarchy of other dynamics, namely that of ego identity and cosmic ignorance. These dynamics were shown to add considerable depth to the understanding of behavioral principles. Finally several additional points of interface were touched on including the relationship between behavior and reincarnation, and the underlying motivational structure that guides behavior and learning and that involves the relationship between emotions and behavior.

It is hoped that this survey, while by no means exhaustive or comprehensive, has at least suggested that behavioral psychology can be usefully understood by placing it within the broad context of classical yoga psychology. It is also hoped that this effort stands in clear contrast to the current reductionistic trends in behavioral psychology.

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Chapter 23

Place and Purpose of Yoga

PROF GYAN MOHAN

The demands and expectations of the society from an individual for exceed what can be achieved through an educational process of imparting only skills. Also, the deep urges of an individual for peace, tranquility, and freedom look for an educational process much richer than is normally available in our universities and IITs. Ignoring these social demands and personal urges may result in a lopsided development of personality which may give rise to severe internal stresses A person caught in such a stress is incapable of balanced judgement and right decisions. He is prone to break-down.

What are those components, complimentary to the educational activity in the classrooms and laboratories, which will meet the social and personal challenges? Physical fitness exercises, sports, social service, ethics, morals and religion are some of the features often stressed in this connection. It cannot be denied that they do have their place in a wholesome education. Many institutions have given deep thoughts to the role of such activities and introduced many desirable features as co-curriculum activities.

Yoga belongs to a different class. Is is not a system of physical exercises to build up strength and muscles. It is not a system of mental exercises to build up will power and memory. It is not an acquisition of morality and principles of social living. Although Yoga has features in it that do all of these, the deeper meaning of Yoga is beyond.

Asana and Pranayama are known to tone up digestive, grandular and nervous systems of our body. This is a tremendous achievement and one of the main reasons for the growing

popularity of Yoga. Yet the objective is subtler.

A malfunctioning of the digestive or nervous system draws the attention of the mind. This attention, to a certain extent, has a curative value. However, let us clearly realize that it also means preoccupation of the mind with a grosser physical process. Mind is no longer available for creative and imaginative activity which is its appropriate level of activity. It is caught up in a lower level.

For the release of mind, body must work without fault. A healthy body is one that does not Distract the attention of the mind. A well balanced and lubricated machine makes no noise. A healthy body is not felt. It leaves feelings and thinking entirely free from the clutches of the physical domain. That is the objective.

Sportsmen and athletes often have healthy bodies. But their minds are centered on the physical dexterity achieved. Their objective is to excel in sports or athletics and not to free the mind. Mental power goes hand-in-hand with the physical to achieve that excellence. There is no release of the mind.

Mental relaxation, control of mind and concentration power are important features of Yoga. The efficacy of Yoga in this direction is particularly impressive. It excels psychotherapy. However, this excellence is not the objective.

To release the mind from its vanity, psychological fixations, angularities and hangups is a natural outcome of Yogic practices. But the objective is subtler. The mind must become sensitive and available for signals from sources that transcend all pettiness of space, time, and social groupings. Mind must survey without bias the grand panorama of life. This is the sure sign of a released mind, a free mind.

However, these objectives themselves create distortions in human personality. Every objective has a built-in acceptance and rejection sectors. This creates internal stress. Any stress distorts vision and perception. It draws the attention of the human spirit and makes it preoccupied at a lower level.

For the release of the human spirit all objectives fade away. Then there is a unison with the cosmic purpose. Supreme power and action flow effortlessly through such a personality to fulfil the union.

That is Yoga.

Chapter 24

Education and Two Concepts of Yoga

S.N. MAHAJAN

Preservation and change, both are necessary for a healthy society. Without change a society will stagnate and become increasingly incapable of dealing with the new challenges, it crumbles under the dead weight of its obsolete notions and practices.

Without the element of permanence, on the other hand, it will be tossed around. At the mercy of winds and waves of the moment it keeps groping for roots and a sense of identity. The institution of education is meant to meet both these requirements of the social organisation. It preserves and passes on to the present generation the accumulated knowledge and wisdom of the past. At the same time by nurturing a spirit of enquiry, critical analysis as well as holistic synthesis, research and discovery of truth in ever fresh areas, it is meant to be an agent of change. In order that education may serve these two functions best, its focal point has to be the individual and the optimum development of his consciousness.

As an ancient system designed to facilitate the full unfoldment of the human potential the value of Yoga for education of the complete human being can hardly be over emphasised.

Below I take up two concepts of Raja Yoga whose implications for man making and learning are extremely important.

The Concept of Samyam

Patanjali describes samyam as dharana having matured into dhyan and samadhi. The consciousness so envelopes the

object that the normal subject object distinction disappears.

When a Yogi has attained mastery over meditation to the extent that he can focus at an object in this manner he may be said to be an adept in samyam. There is a detailed account of the powers of samyam in the Vibhutipada of Patanjali's Yoga-Sutras. In essence it is described as a method of knowledge of unusual nature and extraordinary powers It gives direct immediate, non-speculative knowledge of its object and bestows powers of such a magnitude that in present state of our knowledge they can be described only as super-normal. This applies not only to knowledge of and power over external nature but also to the physico biological, the nervous, the vital, the mental and the spiritual. Some recent experiments on meditation and the control and powers of yogis over what are ordinarily understood to be involuntary functions may be interpreted as steps towards a scientific understanding of the nature and effects of samyam. The notion of samyam has revolutionary implication for the very concept of man and opens up possibilities which have remained unthought of and unexplored in the modern system of education.

The Witness

Another crucial concept of Yoga theory and practice is that of purusha, self as pure witnessing awareness 'Drashtuh Svarupe avasthanam' points to experience of the self as the pure witness, free from desire and aversion, disentangled from the labyrinth of mentations, the calm inviolable centre. In Yogic meditation the witness stands back from all contents of consciousness and watches the rising and unfolding of various mental processes. The everpassing spectacle is staged and disappears without leaving a trace behind. As this practice continues more and more subtle aspects of the psychic life reveal themselves and lay bare their mysteries and their secret workings. All that has laid hidden in the clevices and the dark recesses of the psychic deeps is brought before the unwavering gaze of the all encompassing silent awareness.

The hitherto concealed sources of debilitating knots and complexes are revealed and their hold vanquished. Established in profound impregnable peace quietude, the meditator feels

whole for the first time: undivided, calm but alert, ever poised to act with total spontaneity in the here and now. Freed from the distortions of perceptions and confinement to a particular psycho-physical centre and having attained a living experience of the true self, he is free to experience and act without fear, hostility and anxiety: free to experience the joy of sheer existence, and knowledge that is eternal and yet ever new.

And that is where ends the quest for full unfoldment of the human potential; which is the culmination of any true education.

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22. SRI S.N. SHEVDE
Yoga Therapist; Trustee and Secretary, Yoga Shakti Mission, Bombay; engaged in teaching of yoga and yogic therapy for many years; has lectured widely on the scientific approach to yoga and authored several publications on yogic therapy.

23. SRI O.P. TIWARI
Sahitya Ratna; Secretary General of Kaivalyadhama, Lonavla; his interests include hatha yoga, asanas and pranayama in everyday life and the therapeutic values of hatha yoga; published several popular articles on yoga.

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